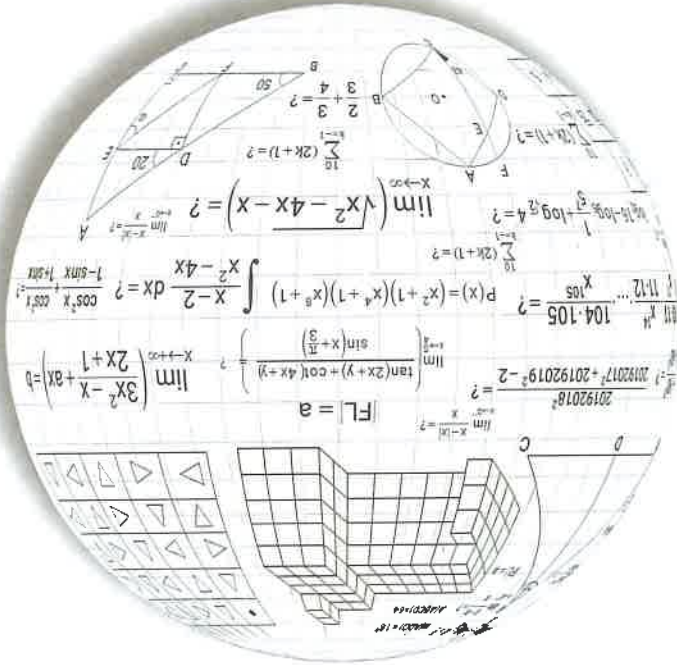


# 30

**ÖZELDEN GENELE**  
**DENEME SINAVI**  
**SPECIAL TO GENERAL**  
**TRIAL EXAM**

# YÖS

**Yeni Tarz Sorular** New Style Questions



**GALATA YÖS-SAT YAYINLARI**



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## ÖNSÖZ

Değerli öğretmen ve sevgili öğrencilerimiz; Galata Eğitim kurumları, 2005'ten bugüne YÖS, SAT ve TÖMER sınavlarına hazırlanan öğrencilerimize eğitim öğretim yanısıra rehberlik hizmetleri de veren bir eğitim kurumudur. Kurumumuz ülkemizde YÖS'e girecek öğrencilerle birlikte dünyanın farklı yerlerinden ülkemize gelen uluslararası öğrencilere de YÖS'e hazırlama aşamasında şu hizmetleri vermektir;

- Ders çalışma teknikleri
- Üniversite ve bölüm bilgileri
- Başvuru ve tercih aşamasında rehberlik hizmetleri

Öğrencilerimiz bu aşamalardan doğru yönlendirmelerle geçerek, adım adım başarıya ulaşması sağlanmaktadır.

Elinizde bulunan 30 Özele Deneme Kitabı 80 sorudan oluşmaktadır ve her denemenin ilk 40 sorusu yeni, diğer 40 sorusu ise eski konulardan olacak şekilde sarmal sisteme göre hazırlanmıştır. Üniversitelerin son yıllarda YÖS'te sormuş oldukları yeni tarz sorulara göre hazırlanmıştır. Bütün konuları kapsayacak şekilde her tarz sorudan hazırlanan kitabımız, sizleri başarıya ulaştıracak ve sınavlarda karşınıza çıkacak sorularda pratiklik kazandıracaktır. Değerli öğretmen ve sevgili öğrencilerimize faydalı olması dileğiyle.

## FOREWORD

Dear teacher and dear students;

Galata Eğitim Kurumları is an educational institution that provides guidance services as well as education to our students who are preparing for YÖS, SAT, and TÖMER exams since 2005. Our institution provides the following services to international students coming to our country from different parts of the world as well as students who will enter YÖS in our country;

- Study techniques
- University and department information
- Guidance services at the application and selection stage

Our students are enabled to achieve success step by step, bypassing through these stages with the right guidance.

The 30 Special to General trial book you have is composed of 80 questions, and each trial exam has been prepared according to the spiral system, with the first 40 questions being new and the other 40 questions from old topics. It has been prepared according to the new style questions that universities have asked in YÖS in recent years. Our book, which is prepared from all kinds of questions in a way to cover all subjects, will make you successful and give you practically in the questions you will encounter in exams. We hope it will be useful to our dear teachers and students.

## AÇIKLAMA

30 Özelden Genelle deneme kitabının özelliği:

80 sorudan oluşan bu kitabımızda her denemede 30 matematik, 30 IQ ve 20 geometri sorusu vardır.

80 soruluk her denemenin ilk 40 sorusu yeni konu, diğer 40 sorusu da eski konuları kapsayacak şekilde hazırlanmıştır.

Öğrencilerin en iyi öğrenme ve pekiştirme durumlarını dikkate alınarak, sarmal sistemle hazırlanan bu kitapta hem konuları anlayıp anlamadığınızı göreceksiniz hem de, yeni nesil bütün soru çeşitlerinden sorular çözümü olacaktır.

YÖS'te bir ilk olan bu deneme kitabı sizleri hayalinizdeki üniversite ve bölüme taşıyacaktır.

## EXPLANATION

Feature of 30 Special to General trial book:

In this book of 80 questions, there are 30 math, 30 IQ, and 20 geometry questions in each trial.

The first 40 questions of each 80-question trial were prepared in a way to cover the new topic and the other 40 questions to cover the old topics.

In this book prepared with a spiral system, taking into account the best learning and reinforcement situations of the students, you will see whether you understand the topics and solve questions from all kinds of new generation questions.

This trial exams book is a first in YÖS, will take you to your dream university and department.





3. KENAN  
 VARAN 52921  
 YALAN 32821  
 SARAN 72921  
 KALAN 34121

- A) 3272864
- C) 3247864
- B) 3272164
- D) 2272864
- E) 2171864

⇒ KAVALYE = ?

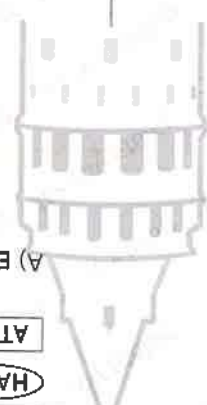
A) 2421  
 B) 1125  
 C) 5425  
 D) 5112  
 E) 5241

2. 2421  
 1125  
 5425  
 5112  
 5241

⇒ \ / / ? = ?

D) 5112

6. ♠ MELIKE = EMILEK  
 ♠ ♠ ♠ ♠ MELIKE = ?  
 A) EMILEK  
 B) EKILEM  
 C) LIMEKE  
 D) MELIKE  
 E) MELIKE



5.

RESIM = EMRIS  
 HALIL = LILAH  
 ATIKE = ?

A) EKITA  
 B) AKITE  
 C) AKIET  
 D) ETIKA  
 E) KIAET

1. ☆ ? ☆  
 12543  
 93251  
 42132  
 35416  
 25314

⇒ ▼ + ■ + ♠ + ● = ?

A) IITKAL  
 B) IITAKML  
 C) TIILAKM  
 D) TIIAKML  
 E) AKMLTII

4. MERHABA ☺ = REMABAH  
 TÜRKIYE = RKYÜTE  
 FAKÜLTE ☺ = KÜTLAFE ☺ = TÜKAFEL  
 KATILIM ☺ = ?

7. YIL = ★★  
YEL = ★★

SULU = ●●★★

SELAM = ?  
VATAN = ?

- A) ★★☆☆
- B) ★★☆☆★
- C) ★★☆☆●●
- D) ●●☆☆★
- E) ●●☆☆●●

8. SIVAS = 00110  
YAVAS = ?  
KALTIM = ?  
SATILM = ?

- A) 0101010
- B) 0101011
- C) 0100111
- D) 111000
- E) 1010100

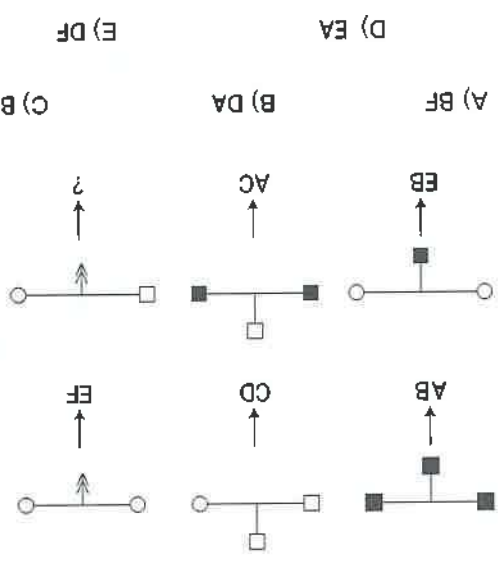
9. SEL = ?  
YEL = ?  
ERA = ?

- A) 123
- B) 345
- C) 135
- D) 680
- E) 246

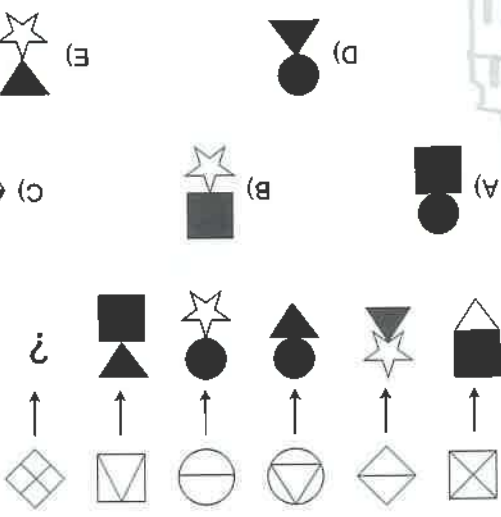
- A) 123
- B) 345
- C) 246
- D) 680
- E) 468

- C) 135
- D) 680

12.



11.



10.

- (x, y)    (z, t)    (p, y)    (t, t)    (z, p)    (x, r)
- ↑        ↑        ↑        ↑        ↑        ↑
- (K, L)    (M, N)    (O, L)    (S, N)    (M, O)    ?

- A) K, S
- B) M, K
- C) O, N
- D) S, L
- E) O, S

13. KALBALIK = 123242361  
GALATA = ?

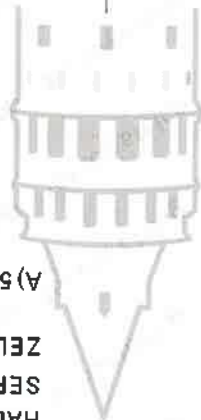
- A) 423252
- B) 123242
- C) 223292
- D) 543424
- E) 823272

14. DÜZCEL MEHMET = ?

- A) 1234517
- B) 1234567
- C) 1234567
- D) 1233567
- E) 1234567

15. SELA = SELE  
AMIR = MIRA  
(HİFA) \* = ?

- A) İFEH
- B) FİHA
- C) İFHE
- D) FİAH
- E) HİFA



17.

- A) SAHI 18
  - B) GAFI 36
  - C) HALI 46
  - D) SEFI 57
  - E) ZELI 28
- ⇒ SAFI = ?

16.

- A) HİFA 84
  - B) LİVA 95
  - C) SAFA 76
  - D) SİRA 92
  - E) HAVA 87
- ⇒ SİLA = ?

- A) 47
- B) 58
- C) 52
- D) 63
- E) 86

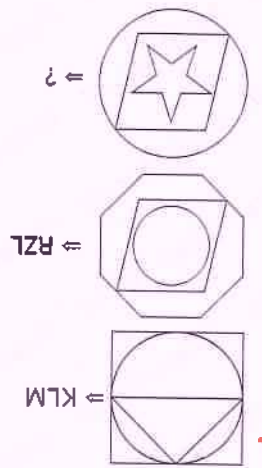
18.  
SEL, KEL = ++  
SİR, SUR = ++  
HAL, JALE = ?

- A) -+++
- B) ---++
- C) ----+
- D) +--+
- E) -+++

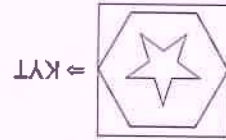


24. KRZA, RMAD, KOZE, OMED, RZOM  
 harf bloklarının sayısal karşılıkları aşağıdaki seçenekler-  
 de karışık olarak verilmiştir. Buna göre "RMAD" in  
 sayısal karşılığı hangisidir?  
 The numerical equivalents of the letter blocks are given  
 mixed in the options. Accordingly, what is the numeri-  
 cal the equivalent of RMAD?

- A) 1234  
 B) 7325  
 C) 3456  
 D) 1486  
 E) 7128



- A) LZM  
 B) LZT  
 C) MZY  
 D) YTR  
 E) KRT



28. KεTOKKZm = # \* ? i % # ○ Δ  
 KZOmTe = ?  
 A) % # ○ i Δ # ? \*  
 B) % # ○ i Δ ? \*  
 C) Δ ? % # ○ i # \*  
 D) # ? i Δ % \* ○  
 E) % # ○ ? i Δ % \*

27.

●	●	+	+	○	○	●	+	*	○	○	●	+	*	KALEM
●	●	+	+	○	○	●	+	*	○	○	●	+	*	SEPAR
●	●	+	+	○	○	●	+	*	○	○	●	+	*	MERAK = KERAM = ?
●	●	+	+	○	○	●	+	*	○	○	●	+	*	MASEL
●	●	+	+	○	○	●	+	*	○	○	●	+	*	LEMAR

26. 3167 EKLA  
 6342 ALEK → .REAK = ?  
 7631 LERI  
 1763 KALE  
 A) 3714  
 B) 3471  
 C) 4371  
 D) 3174  
 E) 7414



29.  $(k)(r)(d)(n)(z)(g)(s)(g) = (3)(4)(1)(5)(8)(7)(6)(2)$   
 $(n)(s)(r)(d)(k)(g) = ?$

- A) 56123      B) 231465      C) 327648  
 D) 321684      E) 561432

2.  $\left(3^{-1} + 4^{-1}\right) + \left(\frac{5}{12}\right)^{-1} = ?$

- A) -1      B) 2      C) -2      D) 3      E) 1

30. TASE SICA KATA TCDE

2961      7493      = CEKI = ?  
 2371      8323

- A) 9184      B) 7186      C) 8384      D) 6739      E) 8421

3.  $a = \frac{11}{20}$        $b = \frac{111}{200}$        $c = \frac{1111}{2000}$   
 $= ? < ? < ?$

- A)  $a < b < c$   
 B)  $a < c < b$   
 C)  $c < b < a$   
 D)  $b < c < a$   
 E)  $c < a < b$

1.  $\frac{3}{4} - \frac{4}{5} = ?$

- A)  $\frac{5}{13}$       B)  $\frac{5}{18}$       C)  $\frac{5}{21}$       D)  $\frac{5}{23}$       E)  $\frac{5}{27}$

4.  $x \neq 0, y \neq 0$  olmak üzere  
 $\frac{x'0,y}{x'0,y} + \frac{x'x,y}{x'x,y} - \frac{y',x}{y',x} = ?$

- A) 20      B) 10      C)  $\frac{1}{10}$       D) 0      E) -10

5.  $a = -2,3456$

$b = -2,3456$

$c = -2,3456$

$d = -2,3456$

A)  $b < a < c < d$

B)  $c < b < a < d$

C)  $d < c < b < a$

D)  $a < b < c < d$

E)  $d < a < c < b$

?

?

6.  $\frac{3 + \frac{3}{1} - \left(\frac{3}{1} - 2\right)}{4 - \frac{1}{2} + \left(\frac{1}{2} + 6\right)} = ?$

A) 10

B) 2

C) 1

D)  $\frac{2}{1}$

E)  $\frac{1}{10}$

7.  $1 - \frac{1}{1 - \frac{1}{1 - \frac{1}{x}}} = ?$

A)  $1 + x$

B)  $1 - x$

C)  $-x$

E)  $x - 1$

D)  $x$



9.  $\frac{0,1}{0,1 + 0,01} + \frac{0,01}{0,01 + 0,001} - \frac{0,01}{0,001} = ?$

A) 0,1

B) 0,2

C) 10

D) 20

E) 100

8.

Bir kesrin değeri  $\frac{5}{3}$  dir. Bu kesrin paydasından 5 çıkarılırsa kesrin değeri  $\frac{2}{3}$  oluyor. İkinci kesrin paydası ve payı arasındaki fark kaçtır ?

The value of a fraction  $\frac{5}{3}$ . If 5 is subtracted from

from the denominator of this fraction, the value of the fraction becomes  $\frac{2}{3}$ . What is the difference

between the denominator and the numerator of the

second fraction?

A) 5

B) 10

C) 12

D) 15

E) 18

10.  $\frac{10}{x}$  sayısının  $\frac{100}{y}$  sayısının kaç katıdır ? How many times  $\frac{10}{x}$  is  $\frac{100}{y}$  ?

A)  $\frac{10y}{x}$

B)  $\frac{10x}{y}$

C)  $\frac{x}{10y}$

D)  $\frac{10}{xy}$

E)  $\frac{10}{xy}$

11.  $x$  pozitif bir ondalık sayıdır.  $x + \frac{1}{40}$  bir tam sayı olduğuna göre  $x$ 'in virgülden sonraki kısmı kaçtır ?  
 Since  $x$  is a positive decimal number and  $x + \frac{1}{40}$  is an integer, what is the part of  $x$  after the comma ?
- A) ... , 025      B) ... , 075      C) ... , 125  
 D) ... , 250      E) ... , 975

12.  $a, b, c$  negatif tamsayılar  $\frac{a}{b} = \frac{8}{9}$  olduğuna göre  $a, b, c$  sıralaması nasıldır ?  
 What is the order of  $a, b, c$  since these numbers are negative integers and  $\frac{a}{b} = \frac{8}{9}$  ?
- A)  $a < b < c$   
 B)  $a < c < b$   
 C)  $c < a < b$   
 D)  $c < b < a$   
 E)  $b < a < c$

14.  $\frac{56}{1} + \frac{72}{1} + \frac{90}{1} = ?$

- A)  $\frac{70}{3}$       B)  $\frac{90}{13}$       C)  $\frac{10}{7}$       D)  $\frac{20}{3}$       E)  $\frac{40}{3}$

15.  $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{3}}}} = ?$

- A)  $\frac{18}{11}$       B)  $\frac{1}{3}$       C)  $\frac{11}{18}$       D) 3      E) 1

ise  $a$  kaçtır ?  
 What is  $a$  ?

13.  $\left(1 - \frac{3}{1}\right)\left(1 + \frac{3}{1}\right)\left(1 + \frac{9}{1}\right)\left(1 + \frac{81}{1}\right) = 1 - \frac{1}{3^a}$

- A) 2      B) 4      C) 6      D) 8      E) 10

16.  $\frac{1}{2} < a < b < \frac{4}{11}$  sıralamasında birbirini izleyen sayılar arasındaki farklar eşittir. Buna göre  $a + b$  kaçtır ?

The differences between the consecutive numbers in the order are equal. Accordingly, what is  $a+b$ ?

- A)  $\frac{4}{5}$  B)  $\frac{4}{7}$  C)  $\frac{4}{11}$  D)  $\frac{4}{13}$  E) 1

17.  $3 + \frac{5}{2 + \frac{3}{x}} = 4 \Rightarrow \frac{3x-1}{3x+1} = ?$

- A)  $\frac{3}{2}$  B)  $\frac{2}{1}$  C)  $\frac{3}{5}$  D) 2 E) 3

20.  $(6:3):3 = (3:3):6 = ?$

- A) -1 B)  $\frac{3}{2}$  C)  $\frac{9}{4}$  D) 4 E) 6

18.  $a, b, c$  ardışık tek sayılardır.  $a, b, c$  ardışık tek sayılardır.  $a, b, c$  are consecutive odd numbers.

$$\left(1 + \frac{a}{2}\right) \left(1 + \frac{b}{2}\right) \left(1 + \frac{c}{2}\right) = 3$$

$$= a+b+c = ?$$

- A) 9 B) 15 C) 21 D) 27 E) 33

21.  $x = 0,2$  ve  $y = 0,02 \Rightarrow \frac{1}{x} + \frac{1}{y} = ?$

- A) 50,25 B) 55 C) 55,25 D) 75 E) 100

19.  $x = \frac{2a+b}{a-b}$  olduğuna göre  $x$ ' in  $y$  cinsinden ifadesi hangisidir ?  
Accordingly, what is  $y$  in terms of  $x$  ?

A)  $\frac{y}{y-1}$  B)  $\frac{y}{y+1}$  C)  $\frac{y+2}{y}$  D)  $\frac{y-1}{y}$  E)  $\frac{y}{2}$



28.  $a$  ve  $b$  tam sayılar.  $a$  and  $b$  are integers.

$$\frac{3a+b-7}{1} + \frac{a-2b+6}{1} = 1$$

olduğuna göre  $3a+3b$  kaçtır ?  
accordingly, what is  $3a+3b$ ?

- A) 12 B) 15 C) 18 D) 21 E) 24

29.  $\left(1 - \frac{1}{1}\right) \left(1 - \frac{9}{1}\right) \left(1 - \frac{16}{1}\right) \left(1 - \frac{25}{1}\right) \dots \left(1 - \frac{2500}{1}\right) = ?$

- A)  $\frac{1}{25}$  B)  $\frac{1}{50}$  C)  $\frac{1}{17}$  D)  $\frac{1}{51}$  E) 1

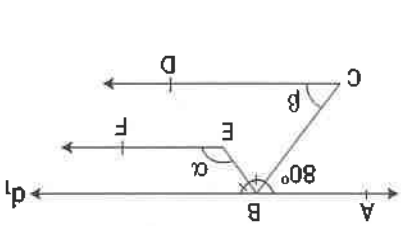
30.  $x = 0,2 + 0,02 + 0,002 + \dots$

$$y = \frac{10^2}{3} + \frac{10^3}{3} + \frac{10^4}{3} + \dots$$

$$= x + y = ?$$

- A)  $\frac{19}{90}$  B)  $\frac{23}{90}$  C)  $\frac{29}{90}$  D)  $\frac{31}{90}$  E)  $\frac{2}{9}$

### Geometri Geometry

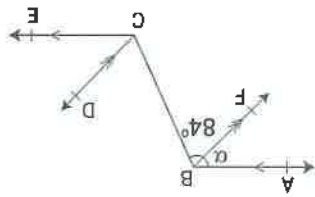


$d_1 // EF // BC$   
 $m(\angle ABC) = 80^\circ$   
 $m(\angle BEF) = \alpha$   
 $m(\angle BCD) = \beta$   
 $\alpha - \beta = ?$

- A) 30 B) 40 C) 50 D) 60 E) 70

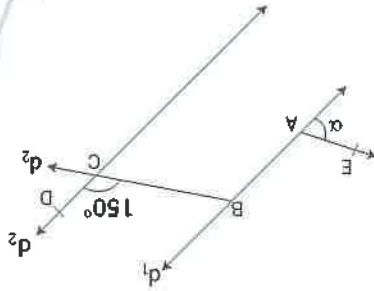


2.  $BA \parallel CE$   
 $BF \parallel CD$   
 $m(\widehat{CBF}) = 84^\circ$   
 $m(\widehat{BCE}) = 144^\circ$   
 $\alpha = ?$



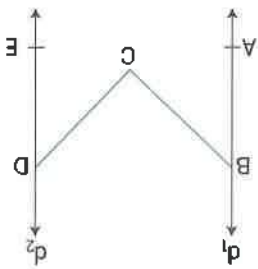
- A) 34 B) 44 C) 54 D) 60 E) 64

3.  $d_1 \parallel d_2$   
 $AE \parallel BC$   
 $m(\widehat{BCD}) = 150^\circ$   
 $\alpha = ?$



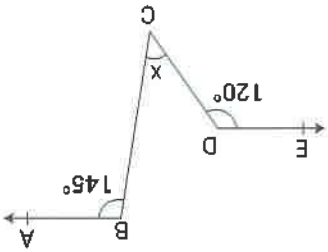
- A) 30 B) 40 C) 100 D) 120 E) 150

5.  $d_1 \parallel d_2$   
 $m(\widehat{ABC}) = 7x$   
 $m(\widehat{CDE}) = 9x$   
 $m(\widehat{BCD}) = 160$   
 $x = ?$



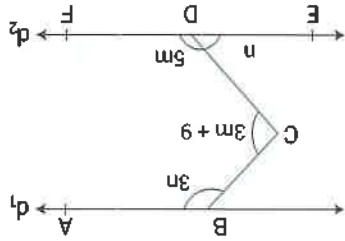
- A) 10 B) 12 C) 14 D) 16 E) 20

6.  $BA \parallel DE$   
 $m(\widehat{EDC}) = 120^\circ$   
 $m(\widehat{ABC}) = 145^\circ$   
 $m(\widehat{DCB}) = x = ?$



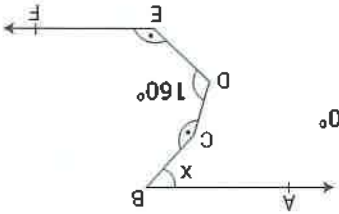
- A) 60 B) 65 C) 70 D) 75 E) 85

4.  $d_1 \parallel d_2$   
 $m(\widehat{ABC}) = 3n$   
 $m(\widehat{BCD}) = 3m+9$   
 $m(\widehat{CDF}) = 5m$   
 $m(\widehat{CDE}) = n$   
 $n = ?$



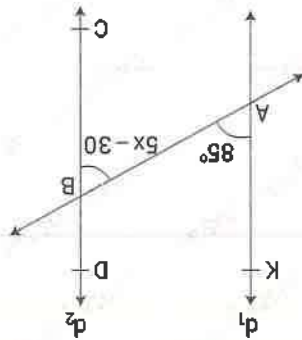
- A) 45 B) 50 C) 55 D) 60 E) 65

7.  $BA \parallel EF$   
 $m(\widehat{BCD}) = m(\widehat{DEF}) = 110^\circ$   
 $m(\widehat{CDE}) = 160^\circ$   
 $x = ?$



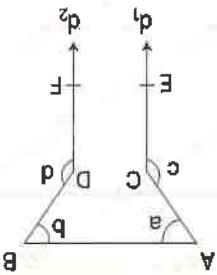
- A) 10 B) 20 C) 30 D) 40 E) 50

8.  $d_1 // d_2$   
 $m(\widehat{ABC}) = 5x - 30$   
 $m(\widehat{KAB}) = 85^\circ$   
 $x = ?$



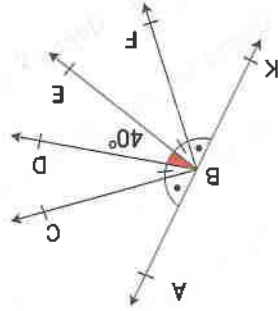
- A) 23 B) 25 C) 26 D) 29 E) 30

10.  $d_1 // d_2$   
 $m(\widehat{CAB}) = a$   
 $m(\widehat{ABD}) = b$   
 $m(\widehat{ACE}) = c$   
 $m(\widehat{BDF}) = d$   
 a, b, c, d arasındaki ilişki nedir?  
 What is the relation between a, b, c, d?



- A)  $c + d - a - b = 180$   
 B)  $a + b - c - d = 180$   
 C)  $c - d + a - b = 180$   
 D)  $a + c - b - a = 180$   
 E)  $a + c - b - d = 180$

9. A, B, C doğrusal  
 A, B, C are linear  
 $m(\widehat{ABC}) = m(\widehat{KBF})$   
 $m(\widehat{CBD}) = m(\widehat{EBF})$   
 $m(\widehat{DBE}) = 40^\circ$   
 $m(\widehat{ABD}) = ?$

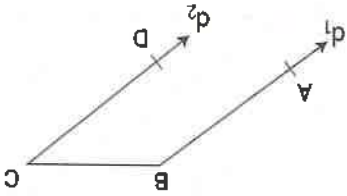


- A) 40 B) 50 C) 60 D) 70 E) 80

12. Bir açının bütününi ikiye katından  $40^\circ$  fazla ise bu açı kaç derecedir?  
 If the supplementary of an angle is 40 times more than twice the complementary, how many degrees is that angle?

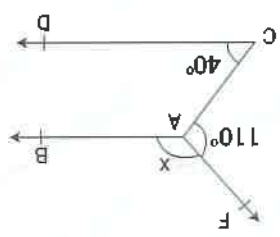
- A) 30 B) 40 C) 45 D) 50 E) 60

11.  $d_1 // d_2$   
 $m(\widehat{ABC}) = 110$   
 $m(\widehat{DCB})$ 'nin tümüni kaç derecedir?  
 How many degrees in the complementary to  $m(\widehat{DCB})$ ?



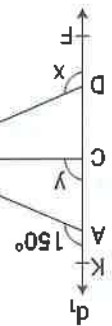
- A) 15 B) 20 C) 70 D) 110 E) 115

13.  $AB \parallel CD$   
 $m(\widehat{ACD}) = 40^\circ$   
 $m(\widehat{CAF}) = 110^\circ$   
 $x = ?$



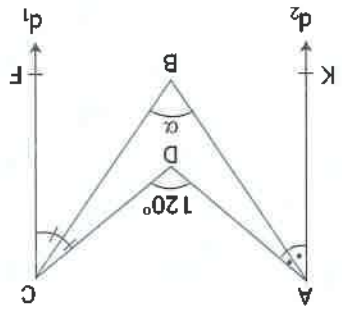
- A) 100 B) 110 C) 120 D) 130 E) 140

14.  $d_1 \parallel d_2$   
 $m(\widehat{ABC}) = m(\widehat{CBD}) = m(\widehat{DBE})$   
 $m(\widehat{KAB}) = 150^\circ$   
 $m(\widehat{BDF}) = x$   
 $m(\widehat{ACB}) = y$   
 $x - y = ?$



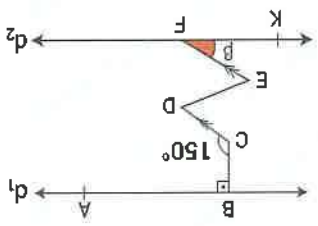
- A) 20 B) 30 C) 40 D) 50 E) 60

15.  $d_1 \parallel d_2$   
 $m(\widehat{KAB}) = m(\widehat{BAD})$   
 $m(\widehat{DCB}) = m(\widehat{BCF})$   
 $m(\widehat{ADC}) = 120^\circ$   
 $\alpha = ?$



- A) 40 B) 50 C) 60 D) 70 E) 80

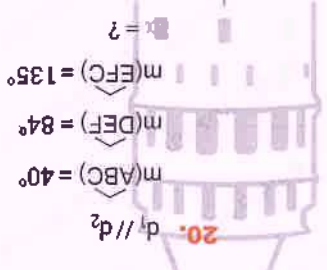
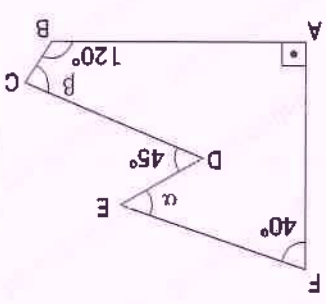
16.  $d_1 \parallel d_2$   
 $CD \parallel EF$   
 $m(\widehat{BCD}) = 150^\circ$   
 $m(\widehat{EFK}) = \beta = ?$



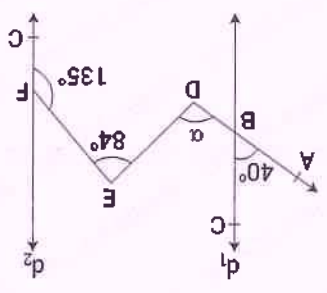
- A) 40 B) 50 C) 60 D) 70 E) 80

18.  $AF \perp AB$
- $m(\widehat{EDC}) = 45^\circ$
  - $m(\widehat{AFE}) = 40^\circ$
  - $m(\widehat{ABC}) = 120^\circ$
  - $m(\widehat{FED}) = \alpha$
  - $m(\widehat{DCB}) = \beta$
  - $\alpha + \beta = ?$

- A) 120 B) 130 C) 135 D) 140 E) 155

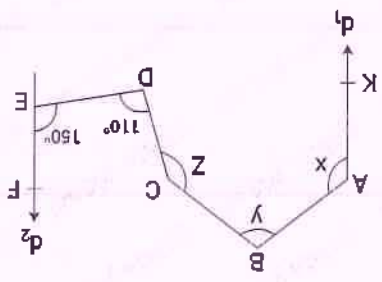


- A) 69 B) 70 C) 72 D) 79 E) 89



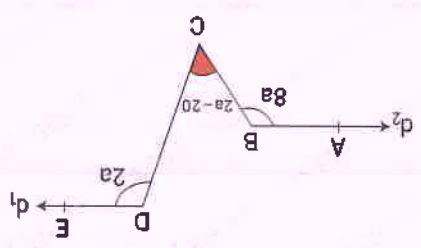
17.  $d_1 \parallel d_2$
- $m(\widehat{KAB}) = x$
  - $m(\widehat{ABC}) = y$
  - $m(\widehat{BCD}) = z$
  - $m(\widehat{CDE}) = 110^\circ$
  - $m(\widehat{DEF}) = 150^\circ$
  - $x + y + z = ?$

- A) 110 B) 150 C) 300 D) 400 E) 440



19.  $d_1 \parallel d_2$
- $m(\widehat{CDE}) = 2a$
  - $m(\widehat{ABC}) = 8a$
  - $m(\widehat{BCD}) = 2a - 20$
  - $a = ?$

- A) 20 B) 30 C) 40 D) 50 E) 60



# Başarıya Götüren



Mat	Problem Solving / Problem	Mat	Problem / Problem	Mat	Problem / Problem
Geo	Volume / Volume	Geo	Area / Area	Geo	Area / Area
Algebra	Algebra / Algebra	Algebra	Algebra / Algebra	Algebra	Algebra / Algebra

Mat	Area / Area	Mat	Area / Area	Mat	Area / Area
Geo	Area / Area	Geo	Area / Area	Geo	Area / Area
Algebra	Algebra / Algebra	Algebra	Algebra / Algebra	Algebra	Algebra / Algebra

Mat	Area / Area	Mat	Area / Area	Mat	Area / Area
Geo	Area / Area	Geo	Area / Area	Geo	Area / Area
Algebra	Algebra / Algebra	Algebra	Algebra / Algebra	Algebra	Algebra / Algebra

Mat	Area / Area	Mat	Area / Area	Mat	Area / Area
Geo	Area / Area	Geo	Area / Area	Geo	Area / Area
Algebra	Algebra / Algebra	Algebra	Algebra / Algebra	Algebra	Algebra / Algebra

Mat	Area / Area	Mat	Area / Area	Mat	Area / Area
Geo	Area / Area	Geo	Area / Area	Geo	Area / Area
Algebra	Algebra / Algebra	Algebra	Algebra / Algebra	Algebra	Algebra / Algebra

Mat	Area / Area	Mat	Area / Area	Mat	Area / Area
Geo	Area / Area	Geo	Area / Area	Geo	Area / Area
Algebra	Algebra / Algebra	Algebra	Algebra / Algebra	Algebra	Algebra / Algebra

Mat	Area / Area	Mat	Area / Area	Mat	Area / Area
Geo	Area / Area	Geo	Area / Area	Geo	Area / Area
Algebra	Algebra / Algebra	Algebra	Algebra / Algebra	Algebra	Algebra / Algebra

Mat	Area / Area	Mat	Area / Area	Mat	Area / Area
Geo	Area / Area	Geo	Area / Area	Geo	Area / Area
Algebra	Algebra / Algebra	Algebra	Algebra / Algebra	Algebra	Algebra / Algebra

Mat	Area / Area	Mat	Area / Area	Mat	Area / Area
Geo	Area / Area	Geo	Area / Area	Geo	Area / Area
Algebra	Algebra / Algebra	Algebra	Algebra / Algebra	Algebra	Algebra / Algebra

## KTS-2

Mat	Order of operations and Rational Numbers
IO	Strater / Passwords
Geo	Angles / Angles

Mat	Order of operations and Rational Numbers
IO	Strater / Passwords
Geo	Angles / Angles

Mat	Order of operations and Rational Numbers
IO	Strater / Passwords
Geo	Angles / Angles

10

4. 16 23 28 38 49 ?  
 A) 54 B) 62 C) 68 D) 73 E) 84
1. 5 12 28 62 132 ?  
 A) 274 B) 264 C) 174 D) 164 E) 160

2. 87 86 74 62 50 ?  
 A) 43 B) 47 C) 54 D) 62 E) 71
5. 114 118 126 138 162 ?  
 A) 171 B) 172 C) 173 D) 174 E) 184

3. 64 72 53 52 42 ?  
 A) 38 B) 31 C) 23 D) 17 E) 8
6. ? 222 130 68 30 10 2  
 A) 347 B) 350 C) 317 D) 268 E) 230





7. 127 108 91 78 67 60 ?

- A) 55 B) 47 C) 33 D) 26 E) 17

8.  $\frac{1}{2}, \frac{4}{4}, \frac{5}{5}, \frac{7}{6}, ?$

- A)  $\frac{9}{7}$  B)  $\frac{10}{9}$  C)  $\frac{11}{7}$  D)  $\frac{11}{9}$  E)  $\frac{13}{7}$

9.  $\frac{47}{13}, \frac{39}{21}, \frac{33}{27}, \frac{28}{32}, \frac{36}{24}, ?$

- A)  $\frac{34}{36}$  B)  $\frac{24}{56}$  C)  $\frac{25}{30}$  D)  $\frac{32}{31}$  E)  $\frac{29}{31}$

12.

13	23	23	38	A	62
16	18	B	28	49	38
A-B=?					

- A) 5 B) 4 C) 3 D) 2 E) 1

14.

Dizinin hatalı terimini bulunuz ?  
Find the incorrect term of sequence ?

146 255 366 489 684 891

- A) 146 B) 255 C) 366 D) 489 E) 684

10.

$\frac{3}{7}, \frac{9}{16}, \frac{12}{23}, \frac{32}{28}, \frac{51}{44}, ?$

- A)  $\frac{48}{56}$  B)  $\frac{63}{61}$  C)  $\frac{73}{65}$  D)  $\frac{65}{74}$  E)  $\frac{72}{83}$

13. Hatalı terimin yerine gelecek sayıyı bulunuz ?  
509 258,125 73 29,13

A) 34 B) 45 C) 61 D) 98 E) 109

A) 342223233  
B) 142221333  
C) 442223333  
D) 342223132  
E) 342213312

16. ABDULLAH → 33212233  
YEŞİLVURT → ?

14. (5,25)(49,76)(200,75)(625,?)

A) 5 B) 10 C) 15 D) 20 E) 25

17. GÜZELLİK  
↑↑↑↑↑↑↑↑  
55342223  
GÖRECELİDİR  
↑↑↑↑↑↑↑↑  
??????????

A) 52243422121  
B) 53241422123  
C) 53341422223  
D) 53441422223  
E) 53342412223

15. (161,182)(59,22)(13,14)(8,?)

A) 43 B) 36 C) 23 D) 7 E) 1

18. YÖSSİNAVİ → 2  
DÜMLÜPİNAR → 4  
34MELİKE → 1  
1965DÖĞÜMLÜ → ?

A) 2 B) 3 C) 4 D) 5 E) 6

19. H → 10

K → 14

R → 21

U → ?

A) 13 B) 17 C) 22 D) 25 E) 28

B) N → ?

KLM →

DFG →

RSŞ →

abe →

A) CKO B) cKO C) pkm D) B)N E) CKM

20. H → 5

E → 5

O → 0

L → ?

A) 0 B) 1 C) 5 D) 3 E) 4

A) (4, 1)

B) (5, 4)

D) (1, 4)

E) (5, 2)

C) (4, 3)

%	↶	↷	↶	↷	%
#	⊕	⊖	⊕	⊖	#
9	8	7	6	5	9
a	b	c	d	e	a

23.

↶ → (5, 3)

6 → (3, 4)

i → (2, 5)

# → (2, ?)

#

i

6

↶

A) 3 B) 4 C) 5 D) 6 E) 7

MÜNEVVER → ?

VAZO → 5

EĞİTİM → 2

GALATA → 6

21.

24. I. AHMET (ÜBETA) KÜBRA

II. SUNAY ( ? ) KAHE

A) AHAYS

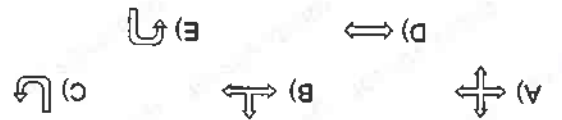
B) AYES

D) HVSUY

E) SUNKA

C) AHSYA

25. Belirlenen ilişkiye göre soldan 62. şekil aşağıdakilerden hangisidir ?  
What is the 62 nd figure from the left in accordance with the relationship established ?



26.

1	xyz	2	@:/	3	#?!
4	=*△	5	∴	6	□%◇
7	{ } ⊖	8	∥ ⇐	9	prs

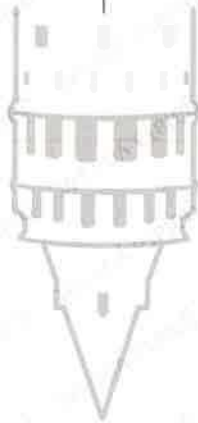
+ # % ⇐ py ? → 5536688891133

☆ ⊕ ◇ = ∴ : z → hangi sayıya karşılık gelir ?

- A) 447733376548822111  
B) 47473336548822111  
C) 447773336548822111  
D) 442223336548822111  
E) 488622233654822111

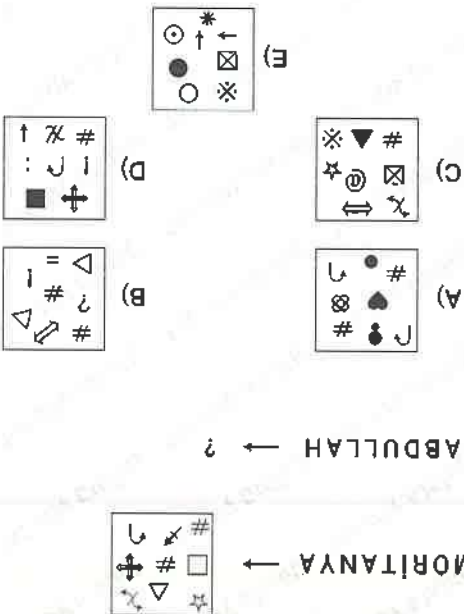
28. LAZOR = 53921  
01Z9L3 = ?

- A) 2R9953  
B) 5RZ9LA  
C) 2RZZ5A  
D) 2R9Z53  
E) 2R9Z5A



ABDULLAH → ?

MORITANYA → ?



27.



4.  $\frac{x-5}{x-1} + \frac{y+4}{y+2} = 3 \rightarrow \frac{x-1}{1} + \frac{2y+8}{1} = ?$

- A)  $-\frac{4}{1}$  B)  $-\frac{2}{5}$  C)  $-2$  D)  $-\frac{2}{3}$  E)  $-1$

7.  $\begin{cases} ax+by+5=0 \\ bx-ay-1=0 \end{cases} = (x,y) = (1,1) \Rightarrow b = ?$

- A) 3 B) 2 C) 1 D) -2 E) -3

5.  $\begin{cases} x-2y=-1 \\ 3x+y=4 \end{cases} = (x,y) = ?$

- A) (1,0) B) (1,-1) C) (1,1) D) (1,-2) E) (2,1)

8.  $\begin{cases} x+y=2 \\ y+z=3 \\ z+x=5 \end{cases} \Rightarrow x+y+z = ?$

- A) 5 B) 7 C) 8 D) 10 E) 12

6.  $\begin{cases} \frac{1}{2}x + \frac{1}{2}y = \frac{15}{11} \\ \frac{2}{3}x - y = -\frac{3}{13} \end{cases} \Rightarrow x+y = ?$

- A) 3 B) 5 C) 7 D) 8 E) 9

9.  $\frac{1}{x} + \frac{x}{x+1} + \frac{x}{x-1} = \frac{3}{4} \Rightarrow x = ?$

- A)  $\frac{4}{1}$  B)  $\frac{3}{1}$  C)  $\frac{2}{1}$  D)  $\frac{4}{3}$  E)  $\frac{3}{2}$





13. a, b, c sırtından ve birbirinden farklı pozitif tam sayılardır.  $3a+2b+c=40$  denklemini sağlayan en büyük c sayısı kaçtır?  
a,b,c are positive integers that are different from zero and each other. Accordingly, what is the highest c that provides  $3a+2b+c=40$  equation?  
A) 30 B) 31 C) 32 D) 33 E) 34

10.  $(2x-y-3)a+(x+y)b=0$  eşitliği her a, b için doğru ise y kaçtır?  
if the equality is correct for every a,b what is y?  
A) -2 B) -1 C) 0 D) 1 E) 2

14.  $\frac{2a}{a-2} + \frac{3}{a-2} = \frac{a-2}{4} + \frac{2a-3}{2} = a = ?$   
A) 3 B)  $\frac{3}{5}$  C)  $\frac{4}{7}$  D)  $\frac{4}{17}$  E)  $\frac{4}{21}$

11.  $x, y, z \in \mathbb{Z}^+$   
 $x \cdot y = 12$   
 $y \cdot z = 60$   
 $x \cdot z = 80$   
olduğuna göre, x kaçtır?  
Accordingly, what is x?  
A) 10 B) 9 C) 8 D) 4 E) 2

12.  $\begin{cases} a-b=22 \\ b+c=10 \\ c-d=8 \end{cases} \Rightarrow a-2b-2c+d=?$   
A) 40 B) 32 C) 20 D) 12 E) 4

15.  $\frac{0,004 \cdot x + 0,3}{3} = \frac{0,007 \cdot x + 0,05}{4} \Rightarrow x = ?$   
A) 141,7 B) 121,8 C) 210 D) 120 E) 100

16.  $\frac{1}{3} - 3a = \frac{1}{4} + 3b = a + b = ?$

- A)  $\frac{1}{12}$  B)  $\frac{24}{1}$  C)  $\frac{36}{1}$  D)  $\frac{48}{1}$  E)  $\frac{60}{1}$

19.  $2x + y = 3$

$mx + ny = 0$

$x - 4y = 6$

denklem sisteminin bir tek çözümü olduğuna göre  $\frac{m}{n}$

kaçtır ?

If the system of equations has only one solution,

what is  $\frac{m}{n}$  ?

- A)  $\frac{2}{3}$  B)  $\frac{1}{2}$  C)  $-\frac{2}{1}$  D)  $-1$  E)  $-3$

17.  $x, y, z$  reel sayılardır.  $x, y, z$  are real numbers

$2x + y + 3z = 10$

$3x + 2y + 2z = 12$

$x + 3y + z = 38$

$\Rightarrow x + y + z = ?$

- A) 10 B) 11 C) 12 D) 13 E) 14

20.  $1 - \frac{4}{3} + \frac{8}{11} = ?$

- A) 2 B)  $\frac{3}{8}$  C) 3 D)  $\frac{3}{10}$  E) 4

18.  $(2x + 3y - 7)^6 + (3x - 2y + 9)^4 = 0 \Rightarrow x \cdot y = ?$

- A) -5 B) -3 C) -1 D) 0 E) 3

21.  $\frac{\left(4 + \frac{3}{1}\right) - \left(2 - \frac{2}{1}\right)}{\left(5 - \frac{1}{3}\right) - \left(4 + \frac{1}{6}\right)} = ?$

- A)  $\frac{2}{13}$  B) 7 C)  $\frac{2}{15}$  D)  $\frac{3}{22}$  E) 8

22.  $\left(1 - \frac{1}{m}\right)\left(1 - \frac{1}{m+1}\right)\left(1 - \frac{1}{m+2}\right) \dots \left(1 - \frac{1}{3m-3}\right) = ?$

- A)  $\frac{1}{m}$
- B)  $\frac{9m-3}{m}$
- C)  $\frac{3m-3}{1}$
- D)  $\frac{1}{3}$
- E)  $\frac{m+1}{3m-3}$

25. sayılarının sıralanışı hangisidir ?  
what is the order of the numbers?

- A)  $a < b < c$
- B)  $a < c < b$
- C)  $c < a < b$
- D)  $c < b < a$
- E)  $b < a < c$

25.  $a = -\frac{6}{13}, b = -\frac{8}{5}, c = \frac{12}{-7}$

26.  $x = 24, 646464\dots$   
 $y = 18, 353535\dots$   
 $\Rightarrow x + y = ?$

- A) 37
- B) 39
- C) 42
- D) 43
- E) 44

23. a, b rakamdir  
a, b are numbers  
 $a + \frac{b}{25} = 1,2 \Rightarrow a + b = ?$

- A) 6
- B) 7
- C) 8
- D) 9
- E) 10

24. a, b, c birer rakamdir.  
a, b, c are numbers.

$\frac{32}{15} = a, bc \Rightarrow a + b + c = ?$

- A) 6
- B) 7
- C) 8
- D) 9
- E) 10

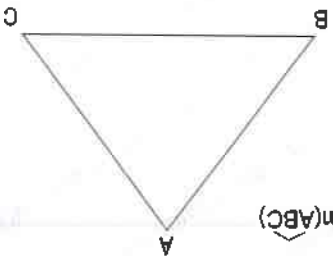
27.  $\frac{2019 + \frac{2019}{1}}{2018 + \frac{2020}{2019}} = ?$

- A)  $\frac{1}{4}$
- B)  $\frac{1}{2}$
- C) 1
- D) 2
- E) 4

28.  $\frac{4,12+3,15}{7,27} = ?$

- A)  $\frac{1}{2}$  B)  $\frac{4}{1}$  C) 1 D) 2 E) 4

1.  $2m(\widehat{BAC}) = 3m(\widehat{ACB}) = 6m(\widehat{ABC})$   
 $m(\widehat{ACB}) = ?$



- A) 30 B) 50 C) 60 D) 70 E) 80

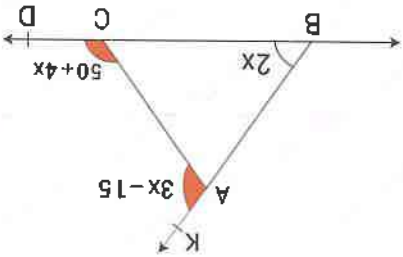
29. x, y, z birer rakamdir.

x, y, z are numbers.

$x+y+z=11 \Rightarrow y,xz+x,z,yx=?$

- A) 12,21 B) 11,21 C) 11,11 D) 10,1 E) 10

2.  $m(\widehat{KBD}) = 2x$   
 $m(\widehat{KAC}) = 3x - 15$   
 $m(\widehat{ACD}) = 50 + 4x$   
 $x = ?$

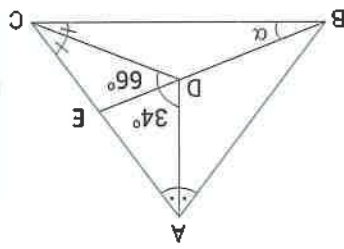


- A) 23 B) 24 C) 26 D) 29 E) 30

30.  $\left(\frac{13}{3} - \frac{7}{2} + \frac{11}{5}\right) - \left(\frac{7}{5} - \frac{11}{6} - \frac{13}{23}\right) = ?$

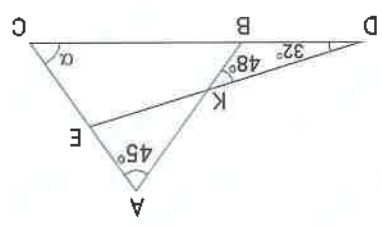
- A) -2 B) -1 C) 1 D) 2 E) 3

4.  $m(\widehat{BAD}) = m(\widehat{DAC})$   
 $m(\widehat{ACD}) = m(\widehat{DCB})$   
 $m(\widehat{ADE}) = 34^\circ$   
 $m(\widehat{CDE}) = 66^\circ$   
 $\alpha = ?$



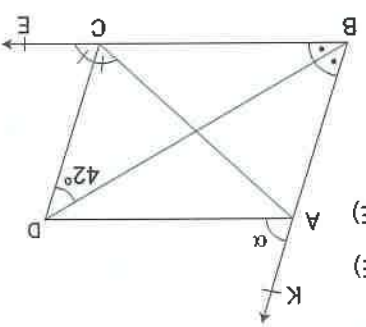
- A) 10 B) 15 C) 20 D) 25 E) 30

3.  $m(\widehat{CDE}) = 32^\circ$   
 $m(\widehat{DKB}) = 48^\circ$   
 $m(\widehat{BAC}) = 45^\circ$   
 $\alpha = ?$



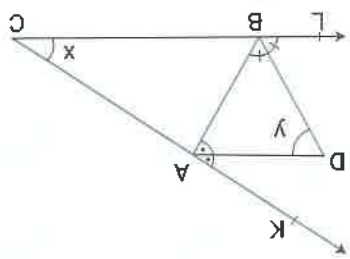
- A) 55 B) 60 C) 65 D) 70 E) 75

6.  $m(\widehat{KBD}) = m(\widehat{DBE})$   
 $m(\widehat{ACD}) = m(\widehat{DCE})$   
 $m(\widehat{BDC}) = 42^\circ$   
 $\alpha = ?$



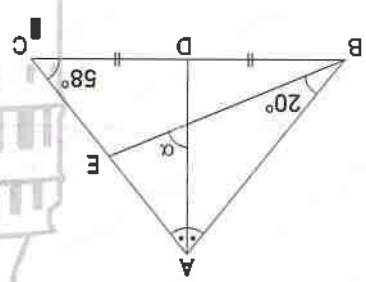
- A) 40 B) 42 C) 44 D) 46 E) 48

5.  $m(\widehat{DAK}) = m(\widehat{DAB})$   
 $m(\widehat{ABD}) = m(\widehat{DBL})$   
 $m(\widehat{ADB}) = y$   
 $m(\widehat{KCL}) = x$   
 x 'in y cinsinden  
 degeri ?  
 What is the value  
 of x in terms of y?



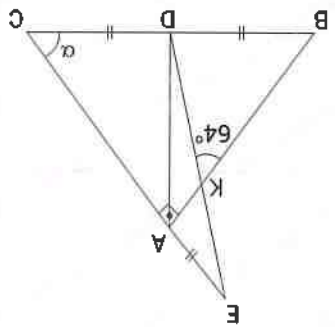
- A)  $2y + x = 180$   
 B)  $2y - x = 180$   
 C)  $y + 2x = 180$   
 D)  $y - 2x = 180$   
 E)  $y + \frac{x}{2} = 45$

8.  $m(\widehat{BAD}) = m(\widehat{DAC})$   
 $|BD| = |DC|$   
 $m(\widehat{ABE}) = 20^\circ$   
 $m(\widehat{ACB}) = 58^\circ$   
 $\alpha = ?$



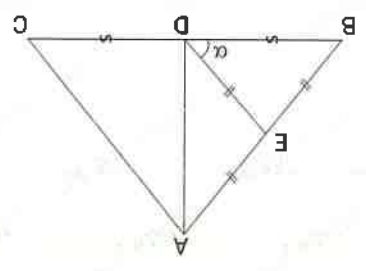
- A) 44 B) 48 C) 50 D) 52 E) 56

10.  $[AB] \perp [EC]$   
 $|BD| = |DC| = |EA|$   
 $m(\widehat{BKD}) = 64^\circ$   
 $\alpha = ?$



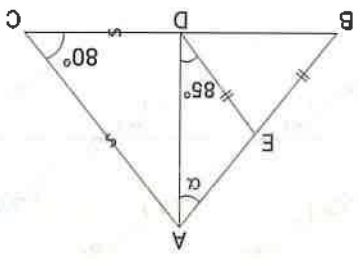
- A) 35 B) 40 C) 45 D) 50 E) 52

7.  $|AE| = |BE| = |ED|$   
 $|BD| = |DC|$   
 $m(\widehat{ACB}) = 42^\circ$   
 $\alpha = ?$



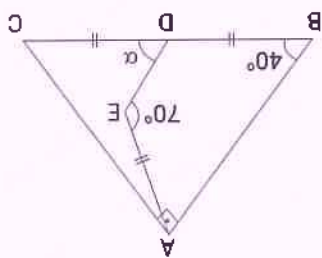
- A) 40 B) 42 C) 44 D) 46 E) 48

9.  $|AC| = |DC|$   
 $|BE| = |ED|$   
 $m(\widehat{ADE}) = 85^\circ$   
 $m(\widehat{ACB}) = 80^\circ$   
 $\alpha = ?$

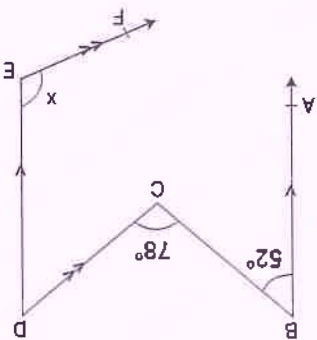


- A) 5 B) 10 C) 20 D) 35 E) 45

11.  $[AB] \perp [AC]$   
 $m(\widehat{AED}) = 70^\circ$   
 $m(\widehat{ABC}) = 40^\circ$   
 $\alpha = ?$   
 A) 10 B) 20 C) 30 D) 40 E) 50

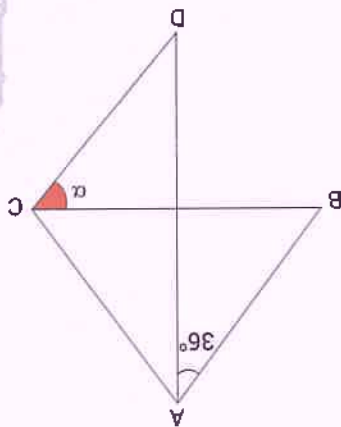


14.  $[BA] \parallel [DE]$   
 $[CD] \parallel [EF]$   
 $m(\widehat{ABC}) = 52^\circ$   
 $m(\widehat{BCD}) = 78^\circ$   
 $x = ?$



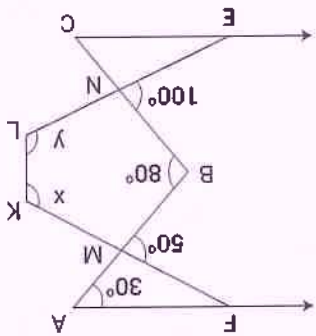
- A) 144 B) 146 C) 150 D) 152 E) 154

12.  $|AB| = |AC| = |AD|$   
 $m(\widehat{BAD}) = 36^\circ$   
 $\alpha = ?$



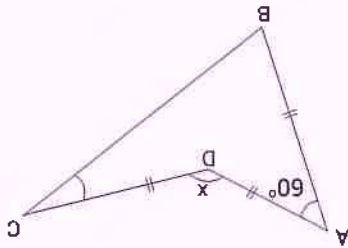
- A) 18 B) 20 C) 24 D) 30 E) 36

15.  $[AF] \parallel [CE]$   
 $m(\widehat{FAB}) = 30^\circ$   
 $m(\widehat{FMB}) = 50^\circ$   
 $m(\widehat{ABC}) = 80^\circ$   
 $m(\widehat{FKL}) = x$   
 $m(\widehat{KLE}) = y$   
 $m(\widehat{BNE}) = 100^\circ$   
 $x + y = ?$



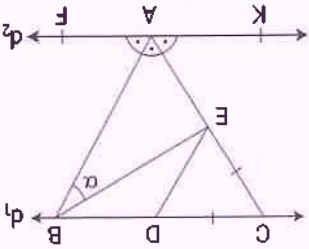
- A) 240 B) 250 C) 260 D) 270 E) 290

13.  $|AB| = |AD| = |DC|$   
 $m(\widehat{DCB}) = 15^\circ$   
 $m(\widehat{BAD}) = 60^\circ$   
 $x = ?$



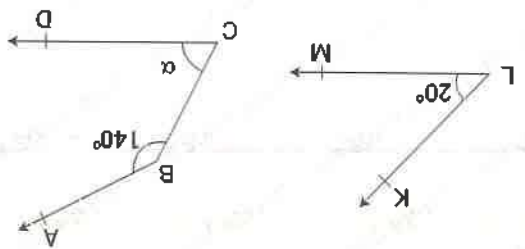
- A) 120 B) 130 C) 140 D) 150 E) 160

16.  $d_1 \parallel d_2$   
 $m(\widehat{KAC}) = m(\widehat{CAB}) = m(\widehat{BAF})$   
 $|CE| = |CD| = |DB|$   
 $m(\widehat{EBA}) = \alpha = ?$



- A) 30 B) 45 C) 60 D) 72 E) 80

17.



$[BA \parallel LM]$   $[CD \parallel LM]$

$m(\widehat{KLM}) = 20^\circ$   $m(\widehat{ABC}) = 140^\circ$

$\alpha = ?$

- A) 30 B) 40 C) 50 D) 60 E) 70

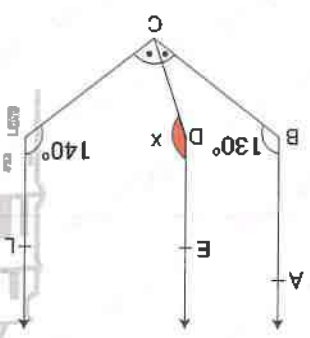
18.  $[AB \parallel DE \parallel FL]$

$m(\widehat{ABC}) = 130^\circ$

$m(\widehat{LFC}) = 140^\circ$

$m(\widehat{BCD}) = m(\widehat{DCF})$

$x = ?$



- A) 90 B) 95 C) 105 D) 145 E) 175

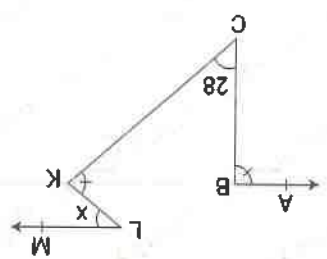
19.

$[BA \parallel LM]$

$m(\widehat{ABC}) = m(\widehat{CKL})$

$m(\widehat{BCK}) = 28$

$x = ?$



- A) 12 B) 24 C) 28 D) 50 E) 56

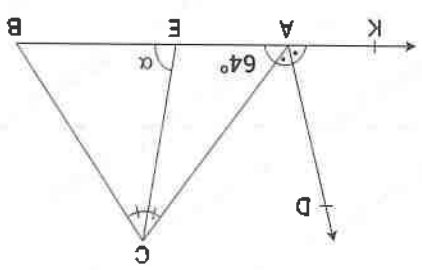
20.  $[AD \parallel BC]$

$m(\widehat{KAD}) = m(\widehat{DAC})$

$m(\widehat{ACE}) = m(\widehat{ECB})$

$m(\widehat{CAB}) = 64^\circ$

$\alpha = ?$



- A) 58 B) 64 C) 90 D) 93 E) 100



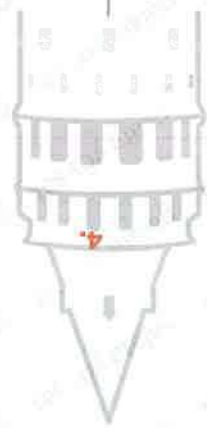


- A) 32 35 40 46 33
- B) 32 34 43 56 17
- C) 51 57 62 73 81
- D) 1 7 10 10 7
- E) 1 7 10 11 12

A) 200 B) 208 C) 216 D) 222 E) 228

M=98 K+L=?

⋮	⋮	⋮
24	48	40
40	80	24
48	48	15
30	30	6
12	12	23
M	L	K



IV.	?	?	?	?	?
III.	16	21	25	28	30
II.	30	31	34	39	46
I.	15	17	19	21	23

2.

- A) 5 27
- B) 22 10
- C) 22 7
- D) 22 8
- E) 20 7

I.	15	17	19	21	23	25
II.	34	30	26	?	18	14
III.	13	11	18	?	14	12

1.

- A) 0 10
- B) 7 23
- C) 6 32
- D) 1 10
- E) 12 43

34	75	86	92	?
12	35	48	18	?

3.

1.	15	22	29	36	43	50	57	...	?
2.	111.	...	7.	6.	5.	4.	3.	2.	1.

A) 781 B) 782 C) 783 D) 784 E) 785

5.

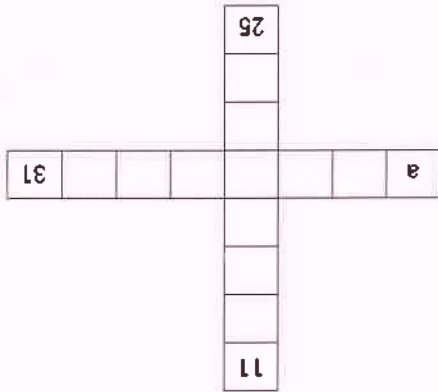
7. 56 83 65 68 36 ?

A) 56 B) 59 C) 61 D) 65 E) 69

L L+y L+2y L+3y L+4y L+5y ...

k  
k+x  
k+2x  
k+3x  
k+4x

6.



a = ?

A) 10 B) 9 C) 8 D) 7 E) 6

8.

A	B	C
2	7	3
3	13	7
5	21	11
7	29	15
11	41	19
13	49	23
...	...	...

A = 29 B + C = ?

A) 134 B) 135 C) 136 D) 137 E) 138

9. 17 31 35 30 39 43 43 43 47 ?

A) 55 B) 56 C) 57 D) 58 E) 59

10.  $f(1)=0$   
 $f(2)=2$   
 $f(3)=6$   
 $f(4)=12$   
 $\rightarrow f(n)=?$

- A)  $n^2+n$   
 B)  $2^n-n$   
 C)  $n^3+\frac{n}{2}$   
 D)  $n^2-n$   
 E)  $n^3+3$

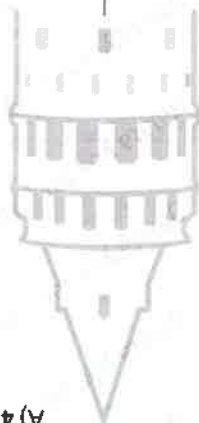
$a \neq 0$   $b \neq 0$   $\frac{a}{b} - \frac{b}{a} = 0 \Rightarrow k_{1983} - k_{2020} = ?$

$\frac{a^2}{b^2}$	$k_1$
$\frac{a^4}{b^4}$	$k_2$
$\frac{a^6}{b^6}$	$k_3$
$\frac{a^{2n}}{b^{2n}}$	$\dots$
	$k_n$

- A) -2    B) -1    C) 0    D) 1    E) 2

12. 7 14 33 70 131 222 349 ?

- A) 510    B) 514    C) 516    D) 517    E) 518



15. Asğıdakilerden hangisi farklıdır ?  
 Which number of the following is different?

- A) 77    B) 93    C) 87    D) 98    E) 65

14. 3 4 7 11 18 29 ?

- A) 45    B) 46    C) 47    D) 48    E) 49

13.

- A)  $\frac{34}{17}$     B)  $\frac{35}{16}$     C)  $\frac{36}{25}$     D)  $\frac{37}{26}$     E)  $\frac{38}{27}$

- A)  $\frac{44}{34}$     B)  $\frac{45}{35}$     C)  $\frac{46}{36}$     D)  $\frac{47}{37}$     E)  $\frac{48}{38}$

19. 71, 49, 53, 18, 34, 26, 23 sayıları aşağıdaki eşitliği sağlayacak şekilde yerleştirildiğinde hangi sayı kullanılmaz?  
Which number cannot be used when the numbers are inserted in such a way as to achieve the following equation?  
 $\square + \square + \square = \square + \square + \square$

A) 71 B) 53 C) 49 D) 26 E) 18

20. 1,7 — 2,4 — ? — 2,3 — 1,9 — 2,2

A) 2,8 B) 1,8 C) 3,2 D) 4,3 E) 5,2



21. 4 2 7 6 1 3 0 8 → 59  
8 5 9 6 4 0 7 1 → 23  
5 3 6 2 8 7 4 0 → ?

A) 16 B) 17 C) 18 D) 19 E) 20

16. a, b pozitif tam sayılar

a, b are positive integers

$$a \cdot b = a + (a+1) + (a+2) + (a+3) + \dots + (a+(b-1))$$

$$6,4 = 6 + (6+1) + (6+2) + (6+3)$$

$$m, 7 = 105 = m = ?$$

A) 9 B) 10 C) 11 D) 12 E) 13

17. x, y pozitif tam sayılar

x, y are positive integers

$$x \cdot y = (x-1)(x-2)(x-3) \dots (x-y)$$

$$6,3 = (6-1)(6-2)(6-3) = 5 \cdot 4 \cdot 3 = 60$$

$$12, k = 990 = k = ?$$

A) 3 B) 4 C) 5 D) 6 E) 7

18. 3 81 5 125 7 49 x y  
(x, y) aşağıdakilerden hangisidir?  
Which of the following is (x, y)?

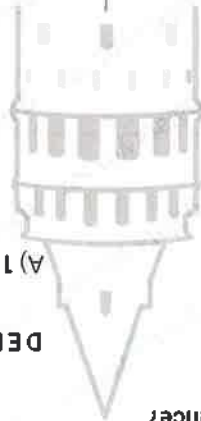
A) (9, 9) B) (10, 11) C) (9, 81) D) (10, 100) E) (11, 12)

22. İSTİKRAR  
↑↑↑↑↑↑↑↑  
21223333  
BAŞARMAKTIR  
↑↑↑↑↑↑↑↑  
? ? ? ? ? ? ? ?

A) 33132332213  
B) 33233433223  
C) 33222422331  
D) 33233433213  
E) 32233433213

23. 9876543987654398 ...  
Sayı dizisinde 2019. sayı hangisidir ?  
Which is the 2019th number in the number sequence?

A) 9 B) 8 C) 7 D) 6 E) 5



26. PİNARBAŞI = 4  
BORAKS = 3  
DOBRA = 4  
EKLİM = 0  
DEPRESYON = ?

A) 1 B) 2 C) 3 D) 4 E) 5

24. İSTANBUL = 12345678  
BULMACA = ?

A) 7681654  
B) 8763454  
C) 6784024  
D) 6780494  
E) 8670414

27. SERHAN = 001011  
FURKAN = 011010  
MERYEM = 011010  
SERVER = ?

A) 11111  
B) 00000  
C) 10100  
D) 11100  
E) 00011

25. A → 1  
Z → 29  
J → 13  
P → ?

A) 20 B) 21 C) 22 D) 23 E) 24

28. **AFGANİSTAN** ♠ = İSTANAFGAN ♠  
 ♠ SURİYE = EYİRUS ♠  
 ♠ TÜRKMENİSTAN ♠ = ♠ NİSTANTÜRKMƏ = EMKRÜTNATSİN ♠  
 ♠ YUNANİSTAN ♠ = ?
- A) YUNANİSTAN  
 B) İSTANYUNAN  
 C) NATSİMANUY  
 D) NANUYNATSİ  
 E) UYANİNTSNA

29. **4782** \* □ ☆ \*  
**8534** ● ◎ \* @  
**5643** ☆ ● ◎ \*  
**3268** ◎ ☆ @ \*  
**6875** @ ◇ ● □
- ⇒ \* ◎ □ ◇ = ?

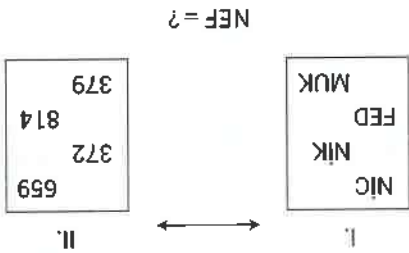
- A) 8475  
 B) 3527  
 C) 4576  
 D) 3567  
 E) 2867

Matematik Maths

1. 
$$\left[ \begin{pmatrix} 1 \\ -2 \end{pmatrix}^{-3} \right]^{-1} = ?$$

A)  $-\frac{1}{2^3}$   
 B)  $\frac{2^3}{1}$   
 C)  $\frac{2^6}{1}$   
 D)  $-2^3$   
 E)  $2^3$

30. A) 352  
 B) 739  
 C) 756  
 D) 329  
 E) 318





2.  $2^7 - 2^6 = ?$

- A) 2 B) 2
- <sup>4</sup>
- C) 2
- <sup>6</sup>
- D) 2
- <sup>6</sup>
- E) 2 · 2
- <sup>6</sup>

5.  $5^x = 7^y \Rightarrow 49^{\frac{x}{y}} - 25^{\frac{y}{x}} = ?$

- A) 24 B) 6 C) 0 D) -24 E) -48

3.  $a = \overbrace{16+16+\dots+16}^{8 \text{ tane}}$

$b = \overbrace{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}^{7 \text{ tane}}$

olduğuna göre a + b toplamı kaçtır?  
accordingly, what is a+b?

- A) 2
- <sup>6</sup>
- B) 2
- <sup>7</sup>
- C) 2
- <sup>8</sup>
- D) 2
- <sup>9</sup>
- E) 2
- <sup>10</sup>

4.  $(a^3 b^2)^4 = ?$

- A) a
- <sup>3</sup>
- b
- <sup>8</sup>
- B) a
- <sup>12</sup>
- b
- <sup>2</sup>
- C) a
- <sup>12</sup>
- b
- <sup>8</sup>
- D) a
- <sup>7</sup>
- b
- <sup>6</sup>
- E) a
- <sup>7</sup>
- b
- <sup>8</sup>

7.  $\frac{z}{x \cdot y} = ?$

$3^{x+y-5} = 5^{x-3} = 2^{2y-z+2}$

$x, y, z \in \mathbb{Z}$

- A) 1 B) 2 C) 3 D) 4 E) 5

6.  $\frac{2^{x+1} + 2^{x+1}}{10^{x-1}} = \frac{5}{8} \Rightarrow x^x = ?$

- A) 4 B) 8 C) 27 D) 16 E)
- $\frac{4}{1}$





8.  $(0,125)^{x-3} = 8^{3x-1} = x = ?$

- A) -3 B) -2 C) -1 D) 0 E) 1

9.  $3^x = 5, 9^y = 125 = \frac{x-y}{x+y} = ?$

- A) -5 B) -3 C) 5 D)  $\frac{5}{1}$  E)  $-\frac{5}{1}$

10.  $\frac{2^{104} - 5 \cdot 2^{100} + 2^{98}}{2^{100} + 2^{98}} = ?$

- A)  $\frac{5}{2}$  B)  $\frac{2}{3}$  C) 5 D) 6 E) 12

11.  $x^{-y} = 2$

$\Rightarrow (x^{2y-1})^{-1}$  in x türünden değeri nedir ?  
 $\Rightarrow$  what  $(x^{2y-1})^{-1}$  in terms of x?

- A) x B) 2x C) 3x D) 4x E) 5x

12.  $t^2 = t+1$

$\Rightarrow t^5$  sayısının değeri aşağıdakilerden hangisidir ?  
 $\Rightarrow$  which of the following is  $t^5$  value?

- A)  $5t+3$  B)  $3t-2$  C)  $3t-3$  D)  $3t+3$  E)  $3t$

13.  $\frac{0,005 \cdot 10^{35} + 0,8 \cdot 10^{33}}{10^{32}} = ?$

- A)  $4 \cdot 10^{33}$  B)  $4 \cdot 10^{32}$  C) 13 D) 8 E) 5

$$14. \left(\frac{3}{1}\right)^{-2x} \cdot 9^{x+1} \cdot 27^{-x} = 81 \Rightarrow x = ?$$

- A) -1 B) 0 C) 1 D) 2 E) 3

$$17. a, b, c \in \mathbb{Z} \quad 2^a + 2^b + 2^c = \frac{64}{1} \Rightarrow a+b+c = ?$$

- A) -15 B) -14 C) -23 D) -12 E) 13

$$18. \frac{x+3}{x} = 2001 \Rightarrow \frac{x}{x-3} = ?$$

- A) -2001 B) -1999 C) -1997  
D) 2001 E) 2003

15.  $x, y, z$  asal sayılardır.  
 $x, y, z$  are prime numbers  
 $x^{y-z} = 5 \Rightarrow y^{x-z} = ?$

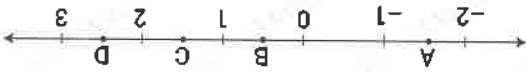
- A) 27 B) 81 C) 125 D) 128 E) 243

$$16. x = 61 \cdot (2^6 + 3) = (x+9)^4 = ?$$

- A)  $2^{36}$  B)  $2^{48}$  C)  $2^{60}$  D)  $2^{72}$  E)  $2^{90}$

19. Aşağıdaki sayı doğrusunda A, B, C ve D gerçel sayılar gösterilmiştir.

The real numbers A, B, C, and D are shown in the following line



Buna göre/ Accordingly

I.  $A > B$

II.  $B > C$

III.  $C > D$

İfadelerinden hangileri doğrudur ?

Which of the statements is true?

- A) III. B) II. C) I, II.

- D) II, III. E) I, III.

20.  $a = \frac{1}{4}$ ,  $b = 12$ ,  $c = -8$  olmak üzere

$$a \cdot b - (c \cdot a - b \cdot c) = ?$$

- A) -91 B) -90 C) -88 D) 91 E) 0

23.  $3(x-1) + \frac{2}{9x+4} = 3x-7$

denkleminin gözüm kümesi nedir ?

what is the solution set of equation?

- A) R B)  $\{-3\}$  C)  $\{6\}$  D)  $\{2\}$  E)  $\emptyset$

21.  $\frac{8}{3} + \frac{0,4}{10} + \frac{0,5}{3} + \frac{0,3}{3} = ?$

- A) 37 B) 39 C) 40 D) 42 E) 45

24.  $(5a-3)x-3=(a+9)x-7$   
denkleminin gözüm kümesi boş küme olduğuna göre, a kaçtır ?  
since the solution set of the equation is an empty set, what is a ?

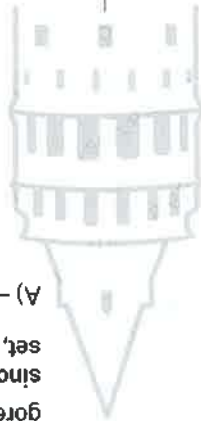
- A) -3 B) -2 C) -1 D) 2 E) 3

22.  $3 + \frac{3 + \frac{3 + \frac{3}{4}}{4}}{4} : 4 = ?$

- A)  $\frac{4}{13}$  B) 3 C)  $\frac{4}{11}$  D)  $\frac{3}{8}$  E) 1

25.  $2a-b+c=11$   
 $a+b-c=-5$   
 $\Rightarrow a=?$

- A) 2 B) 3 C) 4 D) 5 E) 6



26.  $3x - 2 + \frac{x+2}{x-3} + \frac{x-3}{x-4} - \frac{8-x}{11x} - \frac{x+5}{x+5} = 0$

denkleminin çözüm kümesi kaçtır ?

what is the solution set of the equation ?

- A) -5 B) -2 C) 3 D) 4 E) 6

A)  $\frac{a-2}{a+3}$

B)  $\frac{a-2}{a+3}$

C)  $\frac{a-3}{a-3}$

D)  $\frac{a}{a+3}$

E)  $\frac{a-3}{a+3}$

29.

$a^2x - 6a = a^2 + 9x + 9$  ve  $a \neq 3$

$\Rightarrow x = ?$

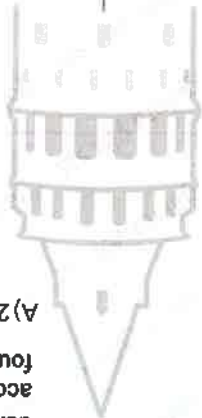
27.

$a \cdot x + 2 \cdot y = 7$   
 $(a+2) \cdot x + (b-1)y = 14$

denklem sisteminin sonsuz çözümü varsa  $a \cdot b = ?$

what is  $a \cdot b$  if the equation system has an infinite solution ?

- A) 18 B) 15 C) 12 D) 10 E) 8



30.

$x = \frac{4y+1}{y-3}$

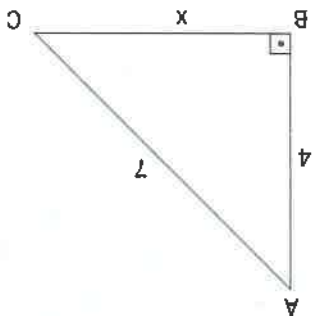
denkleminde göre  $x$  in hangi değeri için  $y$  bulunamaz ?  
 according to the equation, what value of  $x$  can't be found for  $y$ ?

- A) 2 B) 3 C) 4 D) 5 E) 6

28.  $\frac{1}{a} - \frac{1}{1-\frac{1}{a}} - \frac{1}{1-\frac{1}{b}} - \frac{1}{1-\frac{1}{c}} + \frac{1}{1-\frac{1}{b}} + \frac{1}{1-\frac{1}{c}} = ?$

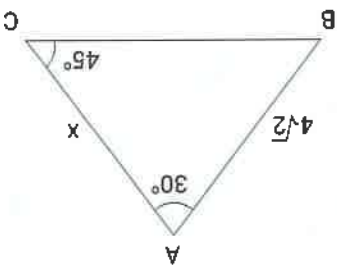
- A)  $\frac{1}{a}$  B)  $\frac{1}{2}$  C)  $\frac{a}{2}$  D)  $\frac{1}{c}$  E)  $-\frac{1}{b}$

1.  $[AB] \perp [BC]$   
 $|AB| = 4$   
 $|AC| = 7$   
 $x = ?$



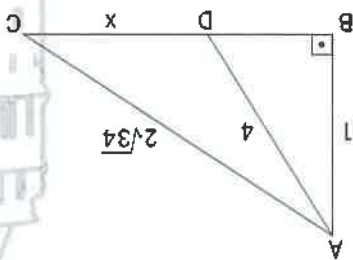
- A)  $\sqrt{30}$  B)  $\sqrt{31}$  C)  $\sqrt{33}$  D)  $\sqrt{34}$  E)  $\sqrt{35}$

3.  $m(\widehat{BAC}) = 30^\circ$   
 $m(\widehat{ACB}) = 45^\circ$   
 $|AB| = 4\sqrt{2}$   
 $x = ?$



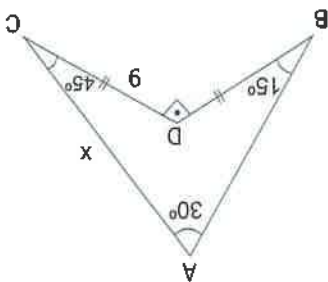
- A)  $2\sqrt{6} - 2\sqrt{2}$  B)  $\sqrt{6} + 2\sqrt{2}$  C)  $2\sqrt{6} - \sqrt{2}$  D)  $2\sqrt{6} + 2\sqrt{2}$  E)  $\sqrt{6} - \sqrt{2}$

2.  $[AB] \perp [BC]$   
 $|AB| = 1$   
 $|AD| = 4$   
 $|AC| = 2\sqrt{34}$   
 $x = ?$



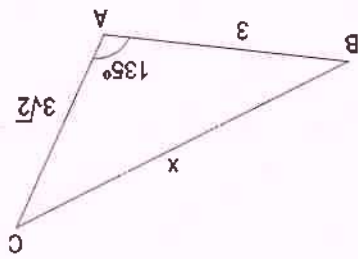
- A)  $\sqrt{15}$  B)  $2\sqrt{15}$  C)  $3\sqrt{15}$  D)  $\sqrt{34}$  E)  $\sqrt{17}$

4.  $[BD] \perp [CD]$   
 $m(\widehat{ABD}) = 15^\circ$   
 $m(\widehat{DCA}) = 45^\circ$   
 $m(\widehat{BAC}) = 30^\circ$   
 $|CD| = |BD| = 9$   
 $x = ?$



- A) 9 B)  $9\sqrt{3}$  C)  $9\sqrt{6}$  D) 10 E)  $10\sqrt{3}$

6.  $m(\widehat{BAC}) = 135^\circ$   
 $|BA| = 3$   
 $|AC| = 3\sqrt{2}$   
 $x = ?$

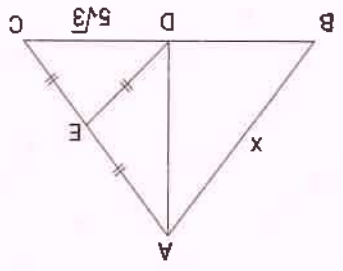


- A) 2    B)  $\sqrt{5}$     C)  $2\sqrt{5}$     D)  $3\sqrt{5}$     E)  $4\sqrt{5}$

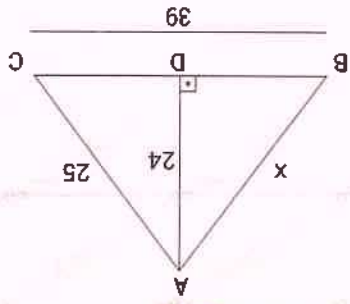
8.  $|AE| = |EC| = |DE| = 5$   
 $|DC| = 5\sqrt{3}$   
 $|BC| = 7\sqrt{3}$   
 $|AB| = x = ?$



- A)  $\sqrt{30}$     B)  $\sqrt{31}$     C)  $\sqrt{33}$     D)  $\sqrt{34}$     E)  $\sqrt{37}$

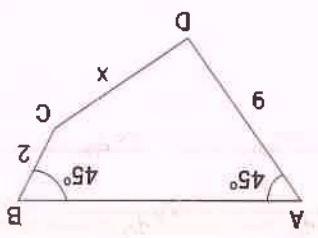


5.  $[AD] \perp [BC]$   
 $|AD| = 24$   
 $|AC| = 25$   
 $|BC| = 39$   
 $x = ?$



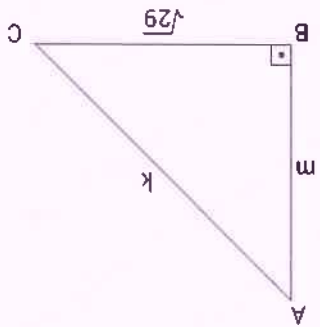
- A) 28    B) 30    C) 34    D) 36    E) 40

7.  $m(\widehat{ABC}) = m(\widehat{DAB}) = 45^\circ$   
 $|BC| = 2$   
 $|AD| = 9$   
 $|AB| = 17\sqrt{2}$   
 $|CD| = x = ?$



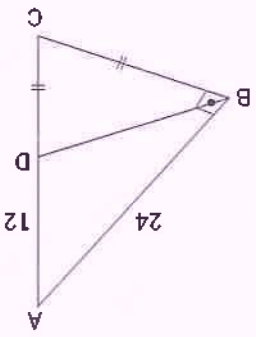
- A) 9    B) 13    C) 15    D) 17    E) 18

9.  $[AB] \perp [BC]$   
 $|AB| = m$   
 $|AC| = k$   
 $|BC| = \sqrt{29}$   
 $m^2 + k^2 = 83$   
 $m = ?$



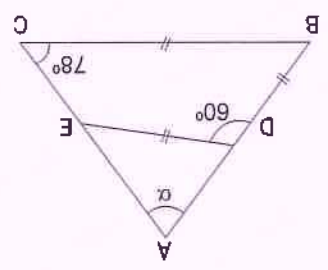
- A)  $3\sqrt{3}$  B)  $4\sqrt{3}$  C)  $5\sqrt{3}$  D)  $6\sqrt{3}$  E)  $7\sqrt{3}$

10.  $[AB] \perp [BC]$   
 $|AD| = 12$   
 $|AB| = 24$   
 $|BC| = |CD|$   
 $\hat{C}(ABC) = ?$



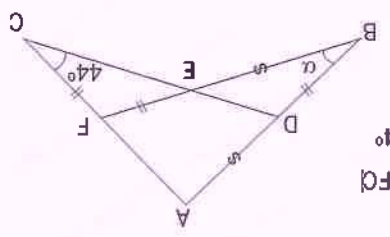
- A) 60 B) 64 C) 66 D) 70 E) 72

11.  $|BD| = |DE| = |BC|$   
 $m(\widehat{BDE}) = 60^\circ$   
 $m(\widehat{BCA}) = 78^\circ$   
 $\alpha = ?$



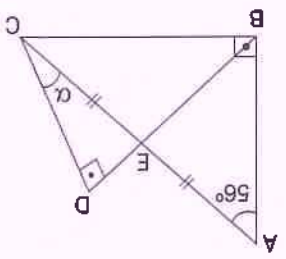
- A) 8 B) 10 C) 18 D) 20 E) 22

12.  $|AD| = |BE|$   
 $|BD| = |EF| = |FC|$   
 $m(\widehat{ACD}) = 44^\circ$   
 $\alpha = ?$



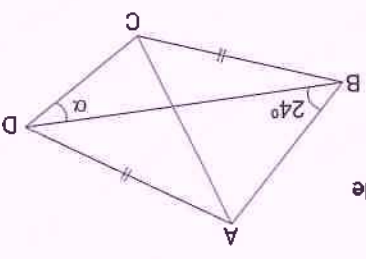
- A) 4 B) 6 C) 10 D) 14 E) 20

13.  $[AB] \perp [BC]$   
 $[BD] \perp [DC]$   
 $|AE| = |EC|$   
 $m(\widehat{BAC}) = 56^\circ$   
 $\alpha = ?$



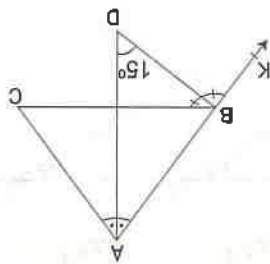
- A) 20 B) 22 C) 24 D) 26 E) 28

14. ABC eşkenar üçgen  
 $|AD| = |BC|$   
 $m(\widehat{ABD}) = 24^\circ$   
 $\alpha = ?$



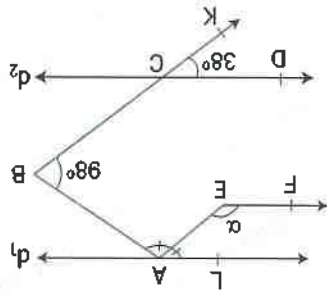
- A) 30 B) 34 C) 35 D) 36 E) 41

15.  $m(\widehat{KAD}) = m(\widehat{DAC})$   
 $m(\widehat{CBD}) = m(\widehat{DBK})$   
 $m(\widehat{ADB}) = 15^\circ$   
 $m(\widehat{CAB}) = 46^\circ$   
 $m(\widehat{KBD}) = ?$



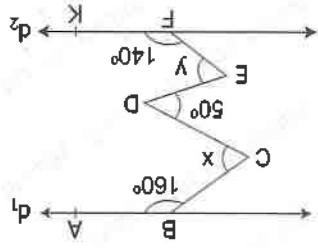
- A) 23 B) 24 C) 33 D) 38 E) 46

16.  $d_1 // d_2 // EF$   
 $m(\widehat{KCD}) = 38^\circ$   
 $m(\widehat{ABC}) = 98^\circ$   
 $m(\widehat{BAE}) = m(\widehat{EAL})$   
 $\alpha = ?$



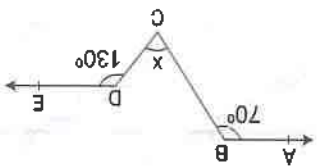
- A) 90 B) 100 C) 110 D) 120 E) 130

17.  $d_1 // d_2$   
 $m(\widehat{ABC}) = 160^\circ$   
 $m(\widehat{EFK}) = 140^\circ$   
 $m(\widehat{CDE}) = 50^\circ$   
 $x + y = ?$



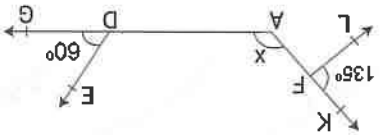
- A) 100 B) 110 C) 120 D) 160 E) 140

18.  $BA // DC$   
 $m(\widehat{ABC}) = 70^\circ$   
 $m(\widehat{CDE}) = 130^\circ$   
 $x = ?$



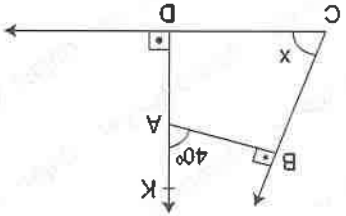
- A) 20 B) 30 C) 40 D) 50 E) 60

19.  $FL // DE$   
 $m(\widehat{LFK}) = 135^\circ$   
 $m(\widehat{EDG}) = 60^\circ$   
 $x = ?$



- A) 100 B) 105 C) 110 D) 115 E) 120

20.  $m(\widehat{ABC}) = 90^\circ = m(\widehat{CDA})$   
 $m(\widehat{BAK}) = 40^\circ$   
 $x = ?$



- A) 40 B) 100 C) 120 D) 130 E) 140





1.  $a \bullet b = a^2 + 2b + 3$

$a \blacktriangle b = a \cdot b - 1$

$(3 \bullet 4) \blacktriangledown 5 = ?$

A) 103 B) 99 C) 88 D) 75 E) 60

4.  $a \neq b = \sqrt[4]{b+1}$

$a \times b = b^a$

$(3 \neq 26) \times (2 \neq 24) = ?$

A) 81 B) 100 C) 121 D) 125 E) 144

2.  $3a \star \frac{b}{4} = 3a + \frac{2b}{3}$

$12 \star 12 = ?$

A) 38 B) 39 C) 40 D) 41 E) 42

5.

$x \dagger y = \frac{1+1}{\frac{x}{y}}$

$\frac{2}{1} \dagger \frac{4}{1} = ?$

A) 1 B) 6 C)  $\frac{6}{1}$  D)  $\frac{5}{2}$  E)  $\frac{3}{2}$ 

3.  $3a+2 \blacksquare (2b-3) = \frac{3a+2b}{3}$

$14 \blacksquare 27 = ?$

A) 16 B) 15 C) 14 D) 13 E) 12

6.

$8 \star 16 = 12$

$14 \star 22 = 18$

$23 \star 39 = 31$

$33 \star 65 = ?$

A) 49 B) 47 C) 45 D) 43 E) 41



7. 24 ■ 15 = 17  
 38 ■ 33 = 30  
 42 ■ 21 = 28  
 26 ■ 42 = ?

A) 18 B) 22 C) 27 D) 33 E) 36

10. 3 ▼ 2 = 25  
 5 ▼ 4 = 81  
 6 ▼ 5 = 121  
 7 ▼ 6 = ?

A) 49 B) 64 C) 100 D) 144 E) 169

8. 5 \* 6 = 8  
 7 \* 9 = 11  
 8 \* 12 = 12  
 9 \* 15 = ?

A) 13 B) 14 C) 15 D) 16 E) 17

11. 3 ● 4 = 12  
 5 ● 8 = 40  
 7 ● 12 = 84  
 9 ● 16 = ?

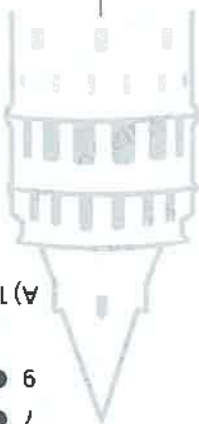
A) 141 B) 142 C) 143 D) 144 E) 145

9. 5 ▽ 3 = 19  
 6 ▽ 4 = 28  
 7 ▽ 5 = 39  
 8 ▽ 6 = ?

A) 46 B) 49 C) 52 D) 58 E) 63

12. 26 ○ 23 = 7  
 56 ○ 44 = 10  
 88 ○ 56 = 12  
 117 ○ 172 = ?

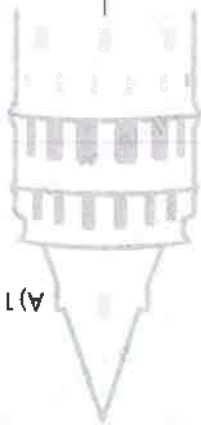
A) 14 B) 15 C) 16 D) 17 E) 18



- 15. ☹ 72 = 25
- ☹ 84 = 20
- ☹ 64 = 10
- ☹ 94 = ?

- A) 15
- B) 20
- C) 25
- D) 30
- E) 35

- 18. 7, 18, 29, 34, 45, 56, 61, ?
- A) 71
- B) 73
- C) 74
- D) 81
- E) 83



- 14. ♠ 27 = 18
- ♠ 37 = 20
- ♠ 57 = 24
- ♠ 86 = ?

- A) 33
- B) 31
- C) 29
- D) 28
- E) 25

- 17. MIKAIL = 111111
- IAL = 010101
- KAI = 001110
- MIL = ?

- A) 100011
- B) 111000
- C) 110011
- D) 000000
- E) 011001

- 13. ☹ 25 36 = 19
- ☹ 64 73 = 81
- ☹ 144 82 = 94
- ☹ 196 = ? 98

- A) 80
- B) 81
- C) 82
- D) 83
- E) 84

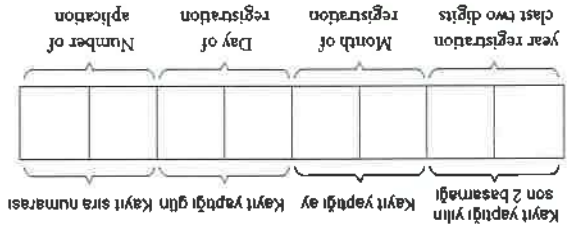
- 16. GLYA = 010111
- AEY = 101010
- GEA = 011001
- AGELYA = ?

- A) 00011
- B) 001110
- C) 000000
- D) 111111
- E) 0101111

19. 20. 21. soruları aşağıdaki bilgileri göre cevaplayınız?  
Answer question number 19, 20 and 21 by the following information ?

GALATA Eğitime kayıt yaptırmanın öğrenci numarası aşağıdaki formülle hesaplanır.

The student number of students who have applied to GALATA Eğitim is made by the formula given below.



Student number should be 8 digit

11 Ekim 2019 tarihinde kayıt yaptırmanın öğrenci numarası aşağıdaki gibidir.  
The student number of a student who applied on 11 th October 2019 is attached below

1	9	1	0	1	1	1	1	7
---	---	---	---	---	---	---	---	---

Örnek

Sample

19.

Öğrenci no

1	9	1	1	1	1	3	1	7
---	---	---	---	---	---	---	---	---

On what date did the student with the student number as above registered?  
Onan bir öğrenci hangi tarihte kayıt yaptırmıştır.

A) 17/11/2019

B) 13/11/2019

C) 19/11/2017

D) 13/11/2017

E) 11/11/2019

23 Ağustos 2019'da kayıt yaptırmanın 10 sıradaki öğrencinin öğrenci numarası kaçtır.  
What is the student number of the student in the 10 throw who applied on 23 rd August, 2019

A) 1 9 1 0 1 0 2 3 0 8

B) 2 3 0 8 1 0 1 1 9

C) 1 9 0 8 2 3 1 0

D) 1 0 0 8 2 3 1 1 9

E) 1 9 0 8 1 0 2 3

21. 

1	9	0	7	3	1	0	6
---	---	---	---	---	---	---	---

Bu tarihte kayıt yaptırın öğrenci kaydını bir gün sonra 2. sırada yaptırma idi öğrenci numarası ne olurdu?  
 What would be the student number of a student who has applied in the given date be, if the student had applied one day after in the second row ?

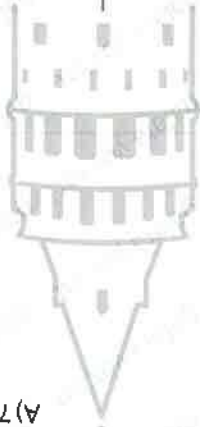
- A) 19083102  
 B) 19073102  
 C) 19080106  
 D) 19073002  
 E) 19080102

23. 10, 12, 15, 20, 27, ?

- A) 34 B) 35 C) 38 D) 42 E) 44

24. 1, 2, 3, 5, 11, 35, ?

- A) 70 B) 95 C) 120 D) 135 E) 155



22. 14, 15, 24, 30, ?, 63

- A) 18 B) 25 C) 36 D) 40 E) 54

25. 4, 4, 4, 6, 18, 22, 110, ?

- A) 115 B) 116 C) 120 D) 180 E) 220

26. 8, 8, 8, 16, 19, 19, 15, 3, 18, 25, ?

A) 9 B) 11 C) 12 D) 17 E) 24

27.  $3,75 - 5 - 6,50 - 8,25 - 10,25 - ?$

A) 11,75 B) 12 C) 12,25 D) 12,50 E) 12,75

28. 20, 1, 16, 20, 81, ?, 20

A) 87 B) 169 C) 196 D) 256 E) 264

29.

5	2	15	4	25	x
25	10	75	20	125	y

$$x+y=?$$

A) 200 B) 150 C) 120 D) 54 E) 36

30.

1	2	7	3	20	3	61	?
---	---	---	---	----	---	----	---

A) 3 B) 4 C) 5 D) 54 E) 81

Matematik | Maths

1.  $\sqrt{3x-2} - \sqrt{15-3x}$

(İadesini gerçek (real) sayı yapan kaç doğal sayı vardır ?  
How many natural numbers are for making the above  
statement a real number?

A) 3 B) 4 C) 5 D) 6 E) 7



2.  $\frac{3x + \sqrt{5x-1}}{2 + \sqrt{1-5x}} = ?$

- A)  $\frac{2}{3}$  B)  $\frac{10}{3}$  C) 2 D) 5 E) 6

3.  $\sqrt{13 - \sqrt{19 - \sqrt{5 + \sqrt{16}}}} = ?$

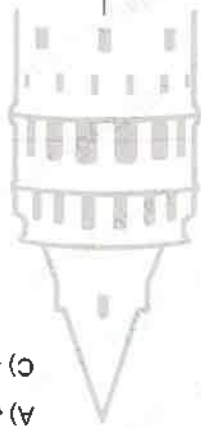
- A) 1 B) 2 C) 3 D) 4 E) 5

4.  $\sqrt{75 + \sqrt{27}} - \sqrt{48 - \sqrt{12}} = ?$

- A)  $-\sqrt{3}$  B) 0 C) 2 D)  $2\sqrt{3}$  E)  $4\sqrt{3}$

7.  $\sqrt{0,64 + \sqrt{0,09}} - 2\sqrt{2,25} = ?$

- A) -2,4 B) -2,2 C) -1,9 D) -1,1 E) -0,9



6.  $2\frac{1}{2} + 3\frac{1}{2} - 5\frac{1}{2} = ?$

- A)  $\sqrt{2 - \sqrt{3} + \sqrt{5}}$  B)  $\sqrt{2 + \sqrt{3} + \sqrt{5}}$   
 C)  $\sqrt{2 + \sqrt{3} - \sqrt{5}}$  D)  $\sqrt{2 + \sqrt{3} - \sqrt{5}}$   
 E)  $\sqrt{2 + \sqrt{3} + \sqrt{5}}$

5.  $\sqrt{\frac{5}{2}} \cdot \sqrt{\frac{8}{5}} = ?$

- A) 2 B)  $4\sqrt{2}$  C)  $2\sqrt{5}$  D) 4 E)  $\sqrt{10}$



8.  $x, y \in \mathbb{R}$  olmak üzere,  
 $\sqrt{x+y+4} + \sqrt{2x-y-19} = 0$   
 $\Rightarrow 3x+y = ?$   
 A) 5 B) 6 C) 7 D) 8 E) 9

10.  $\frac{\sqrt{3}-1}{2} - \frac{\sqrt{3}}{3} = ?$   
 A)  $2\sqrt{3}$  B)  $\sqrt{3}$  C)  $\sqrt{2}$  D) 1 E) -1

9.  $\sqrt{2} = a$ ,  $\sqrt{3} = b$ ,  $\sqrt{5} = c$   
 $\Rightarrow \sqrt{150} = ?$   
 A)  $a \cdot b \cdot c$   
 B)  $a^2 \cdot b \cdot c$   
 C)  $a \cdot b \cdot c^2$   
 D)  $a \cdot b^2 \cdot c$   
 E)  $a \cdot b^2 \cdot c^2$



11.  $\frac{\sqrt{27}-\sqrt{12}}{\sqrt{3}} = ?$   
 A)  $-2\sqrt{3}$  B) 0 C) 1 D)  $\sqrt{3}$  E)  $2\sqrt{3}$

12.  $\sqrt{3+2\sqrt{2}} - \sqrt{3-2\sqrt{2}} = ?$   
 A) -2 B) 0 C) 1 D) 2 E)  $2\sqrt{3}$

13.  $\frac{\sqrt{2x+2x+2x+2x}}{4\sqrt{2}} = \frac{\sqrt{3x+3x+3x}}{9} \Rightarrow x = ?$   
 A) 0 B) 1 C) 2 D) 3 E) 4

$$14. \sqrt[3]{42 + \sqrt{42 + \sqrt{42 + \dots}}} = \sqrt[3]{16 : \sqrt[3]{16 : \dots}} = ?$$

- A) 3 B)  $\frac{2}{7}$  C) 4 D)  $\frac{2}{9}$  E) 5

$$17. m = 0,2, n = 0,5 \Rightarrow \frac{1}{1 + \frac{m}{2}} = ?$$

- A)  $\frac{9}{2}$  B)  $\frac{9}{7}$  C)  $\frac{10}{81}$  D) 3 E)  $\frac{5}{21}$

$$15. \sqrt{2x + 2\sqrt{x^2 - 4}} - 4 = 1 \Rightarrow S.S = ?$$

- A)  $\left\{ \frac{4}{17} \right\}$  B)  $\left\{ \frac{4}{17} \right\}$  C)  $\{1\}$  D)  $\{4\}$  E)  $\emptyset$

$$18. 163715 : 239 = ?$$

- A) 675 B) 685 C) 695 D) 785 E) 795

19.  $7x+4$ ,  $6x+18$  ardışık iki tam sayı olduğuna göre,  $x$  in alabileceği değerlerin toplamı kaçtır ?

since  $7x+4$  and  $6x+18$  are two consecutive integers, what is the sum of the values that  $x$  can take?

- A) -1 B) 2 C) 24 D) 28 E) 50

$$16. x < 0$$

$$a = \frac{8}{x}, b = -\frac{10}{x}, c = \frac{16}{x}$$

$$? < ? < ?$$

- A)  $a < b < c$  B)  $a < c < b$  C)  $b < c < a$  D)  $b < a < c$  E)  $c < b < a$



20. a, b, c birbirinden farklı rakamlar ve  $a(4b+c) = 17$   
 $a, b, c$  are different digits and  $a(4b+c) = 17$   
 $= \min(a) = ?$   
 A) 8 B) 5 C) 3 D) 2 E) 1

23.  $\frac{18}{29} = a.\bar{bc}$   $= a + b + c = ?$

- A) 6 B) 7 C) 8 D) 9 E) 10

21.  $2 - \frac{1 + \frac{1}{2}}{1 - \frac{1}{2}} = ?$

- A)  $\frac{5}{21}$  B)  $\frac{5}{18}$  C)  $\frac{4}{17}$  D)  $\frac{4}{15}$  E) 3

24.  $x, y, \in \mathbb{N}$   
 $x^2 - y^2 = 5 = x^2 + y^2 = ?$

- A) 11 B) 12 C) 13 D) 15 E) 16

22.  $\begin{cases} \frac{1}{2} + \frac{x-y}{2} = \frac{3}{2} \\ \frac{1}{2} + \frac{x+y}{2} = \frac{5}{3} \end{cases} = x = ?$

- A)  $-\frac{2}{5}$  B) -2 C)  $-\frac{2}{3}$  D) -1 E)  $\frac{2}{7}$

25.  $3 \cdot (x^2)^7 - 2 \cdot (x^7)^2 - x^{13} = ?$

- A)  $x^{14}$  B)  $x^{13}$  C)  $x^{14} - x^{13}$  D) x E)  $3x^{14} - x^{13}$



26.  $(-1)^{151} - (-1)^{27} - 1^{11} - (-1)^{28} = ?$

- A) -4 B) -2 C) 0 D) 2 E) 4

29.  $a = 2^{30}$ ,  $b = 3^{15}$ ,  $c = 5^{10}$

olduğuna göre a, b, c sıralanışı aşağıdakilerden hangisidir ?  
 accordingly, which of the following is the order at a,b,c?

- A)  $c > a > b$  B)  $c > b > a$  C)  $b > a > c$   
 D)  $a > c > b$  E)  $a > b > c$

27.  $3^{x-1} = \frac{9}{5^{x+1} - 3 \cdot 5^x} = ?$

- A)  $\frac{6}{a}$  B)  $\frac{2}{a-3}$  C)  $\frac{a+3}{6}$   
 D)  $\frac{3}{a-1}$  E)  $\frac{6}{a-3}$

30.  $\left(\frac{2}{1}\right)^{y^2+5y} > \frac{1}{64}$   
 eşitliğini sağlayan y tam sayı değerlerinin toplamı  
 kaçtır ?  
 what is the sum of the y integer values that ensure  
 the above equality ?

- A) 16 B) 18 C) 20 D) 22 E) 24

28.  $x, y \in z \Rightarrow \frac{1+3^{x-y}}{3} + \frac{1+3^{y-x}}{3} = ?$

- A) -3 B) -2 C)  $3^{2x-2y}$   
 D) 1 E) 3

1. [AB] ⊥ [AC]

[AD] ⊥ [BC]

|CD| = 3

|BD| = 12

$x = ?$

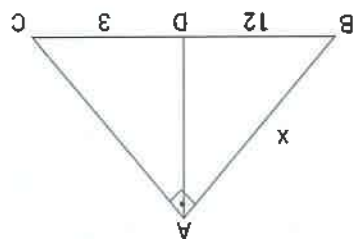
A)  $3\sqrt{5}$

B)  $4\sqrt{5}$

C)  $5\sqrt{5}$

D)  $6\sqrt{5}$

E)  $7\sqrt{5}$



3.

ABC bir üçgen

ABC triangle

[AB] ⊥ [BC]

|AE| = |EB| = |ED|

|CD| = 4

|BD| = 8

$x = ?$

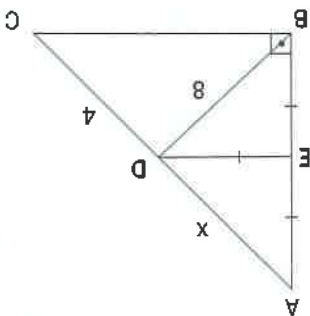
A) 10

B) 12

C) 14

D) 16

E) 18



2. [AB] ⊥ [AC]

[AH] ⊥ [BC]

|AH| =  $\sqrt{35}$

|BH| = x

|HC| = x + 2

|BC| = ?

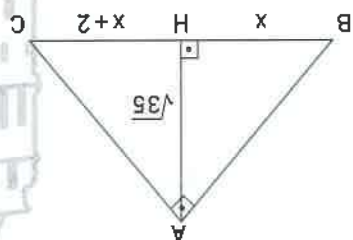
A) 6

B) 8

C) 10

D) 12

E) 14



4.

[AB] ⊥ [BC]

[BD] ⊥ [AC]

|AD| = 4

|DC| = 5

$x = ?$

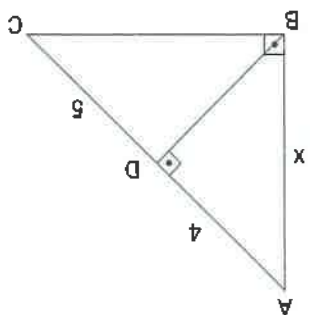
A) 5

B) 6

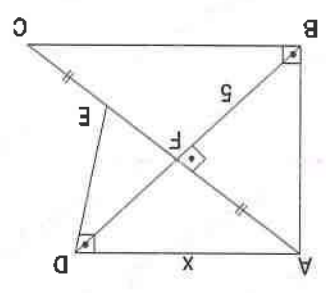
C) 7

D) 8

E) 9

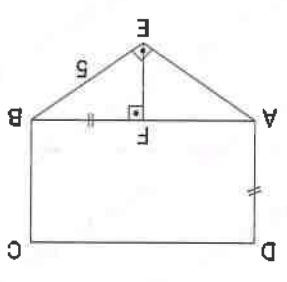


6. [AB] ⊥ [BC]  
 [AD] ⊥ [DE]  
 [AC] ⊥ [BD]  
 |AF| = |EC|  
 |BF| = 5  
 x = ?



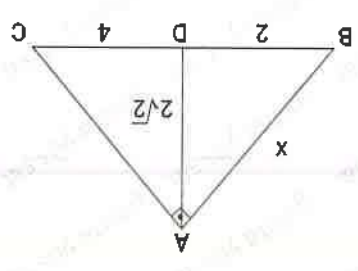
- A) 4 B) 5 C) 6 D) 7 E) 8

8. ABCD bir dikdörtgen  
 [AE] ⊥ [BE]  
 [AB] ⊥ [EF]  
 |AD| = |BF|  
 |EB| = 5  
 A(ABCD) = ?



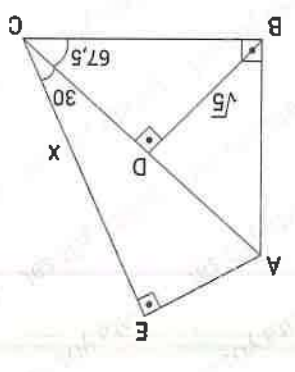
- A) 5 B) 10 C) 15 D) 20 E) 25

9. [BA] ⊥ [AC]  
 |BD| = 2  
 |DC| = 4  
 |AD| = 2√2  
 x = ?



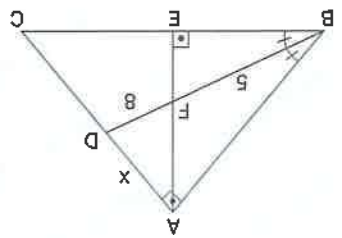
- A) 2√3 B) 3√3 C) 4√3 D) 5√3 E) 6√3

7. [AB] ⊥ [BC]  
 [AE] ⊥ [EC]  
 [BD] ⊥ [AC]  
 m(BCA) = 67,5  
 m(ACE) = 30  
 |BD| = √5  
 |EC| = x = ?



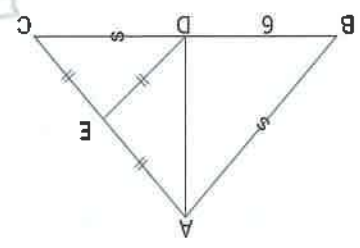
- A) √19 B) √29 C) √30 D) √31 E) √34

9. [BA] ⊥ [AC]  
[AE] ⊥ [BC]  
 $m(\widehat{ABD}) = m(\widehat{DBC})$   
|BF| = 5  
|FD| = 8  
 $x = ?$



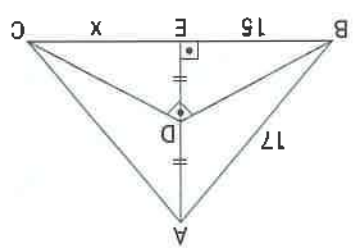
- A)  $2\sqrt{13}$   
B)  $3\sqrt{13}$   
C)  $4\sqrt{13}$   
D)  $5\sqrt{13}$   
E)  $6\sqrt{13}$

10. |AE| = |EC| = |DE|  
|AB| = |DC|  
|AC| = 8  
|BD| = 6  
|AB| = ?



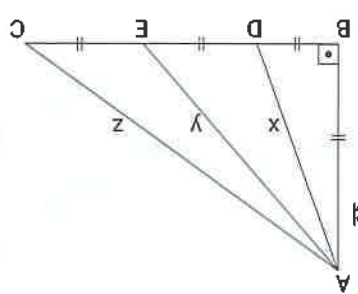
- A) 6  
B)  $5\sqrt{2}$   
C) 7  
D) 8  
E)  $6\sqrt{2}$

13. [BD] ⊥ [DC]  
[AE] ⊥ [BC]  
|AD| = |DE|  
|BE| = 15  
|AB| = 17  
 $x = ?$



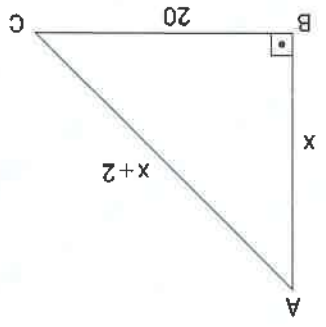
- A)  $\frac{3}{16}$   
B)  $\frac{15}{16}$   
C)  $\frac{3}{17}$   
D)  $\frac{4}{17}$   
E)  $\frac{5}{17}$

11. [AB] ⊥ [BC]  
|AB| = |BD| = |DB| = |EC|  
|AD| = x  
|AE| = y  
|AC| = z  
 $\sqrt{5}y^2 = x \cdot z = ?$



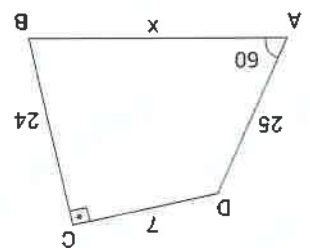
- A)  $\frac{1}{5}$   
B)  $\frac{5}{2}$   
C)  $\frac{5\sqrt{3}}{3}$   
D)  $\frac{2}{5}$   
E)  $\frac{3}{5}$

14. [AB] ⊥ [BC]  
|AB| = x  
|AC| = x + 2  
|BC| = 20  
|AC| = ?



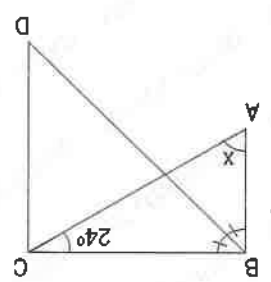
- A) 98  
B) 99  
C) 100  
D) 101  
E) 102

12. ABCD bir dörtgen  
ABCD is a rectangle  
[BC] ⊥ [CD]  
|CD| = 7  
|BC| = 24  
|AD| = 25  
 $x = ?$



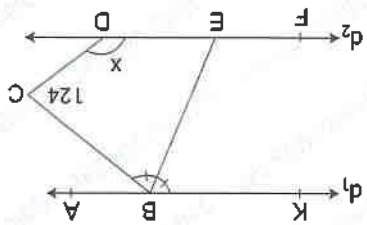
- A) 20  
B) 22  
C) 23  
D) 24  
E) 25

17.  $[AB] \parallel [CD]$   
 $m(\widehat{ABD}) = m(\widehat{DBC})$   
 $m(\widehat{BCA}) = 24^\circ$   
 $|BD| = |CD|$   
 $x = ?$



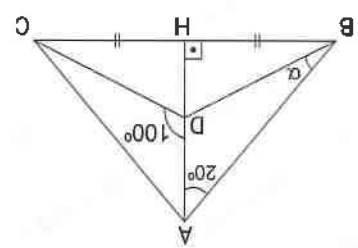
- A) 18 B) 20 C) 24 D) 36 E) 40

20.  $d_2 \parallel d_1$   
 $m(\widehat{BEF}) = 110^\circ$   
 $m(\widehat{KBE}) = m(\widehat{EBC})$   
 $m(\widehat{BCD}) = 124$   
 $x = ?$



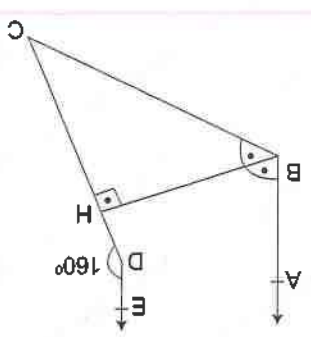
- A) 92 B) 93 C) 94 D) 95 E) 96

16.  $[AH] \perp [BC]$   
 $|BH| = |HC|$   
 $m(\widehat{BAH}) = 20^\circ$   
 $m(\widehat{ADC}) = 100^\circ$   
 $\alpha = ?$



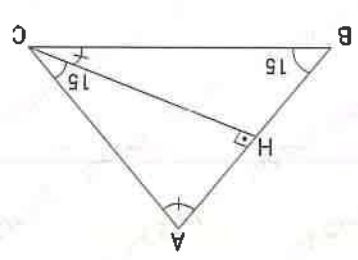
- A) 40 B) 50 C) 60 D) 70 E) 80

19.  $[BA] \parallel [DE]$   
 $m(\widehat{CDE}) = 160^\circ$   
 $m(\widehat{CBH}) = m(\widehat{HBA})$   
 $m(\widehat{HCB}) = ?$



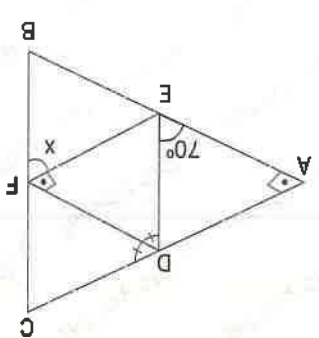
- A) 20 B) 25 C) 45 D) 60 E) 70

15.  $[AB] \perp [HC]$   
 $m(\widehat{BCH}) = m(\widehat{CAB})$   
 $m(\widehat{ACH}) = 15^\circ = m(\widehat{ABC})$   
 $|AB| = 24$   
 $|CH| = ?$



- A) 3 B) 4 C) 5 D) 6 E) 7

18. ABC bir üçgen  
 $[AB] \perp [AC]$   
 $[DF] \perp [EF]$   
 $m(\widehat{EDF}) = m(\widehat{FDC})$   
 $m(\widehat{AED}) = 70^\circ$   
 $|CD| = |DF|$   
 $x = ?$



- A) 20 B) 25 C) 30 D) 40 E) 50





- 21 × 92 = 83
- 32 × 43 = 73
- 33 × 62 = 63
- 25 × 52 = ?

3.

- A) 53
- B) 57
- C) 60
- D) 63
- E) 69

- A) 96
- B) 105
- C) 111
- D) 116
- E) 120

- (4 ■ 6) ■ 8 = 48
- (3 ■ 8) ■ 9 = 54
- (12 ■ 5) ■ 5 = 75
- (14 ■ 10) ■ 3 = ?

6.

- 16 # 71 = 56
- 23 # 33 = 30
- 36 # 42 = 54
- 46 # 54 = ?

2.

- A) 60
- B) 70
- C) 80
- D) 90
- E) 100

- A) 100
- B) 112
- C) 144
- D) 150
- E) 164

- 46 \* 18 = 70
- 83 \* 24 = 70
- 65 \* 36 = 99
- 49 \* 83 = ?

5.

- 41 ? 26 = 13
- 56 ? 68 = 25
- 71 ? 84 = 20
- 94 ? 54 = ?

1.

- A) 22
- B) 23
- C) 24
- D) 25
- E) 26

- A) 5
- B) 7
- C) 11
- D) 14
- E) 18

- 42 ⊕ 01 = 16
- 85 ⊕ 52 = 4
- 73 ⊕ 97 = 3
- 61 ⊕ 93 = ?

4.

7. (1 ♣ 6) ∇ (8 ♣ 4) = 84  
 (9 ♣ 3) ∇ (3 ♣ 3) = 72  
 (7 ♣ 6) ∇ (2 ♣ 4) = 78  
 (8 ♣ 5) ∇ (6 ♣ 5) = ?

A) 170 B) 156 C) 143 D) 96 E) 71

10. ♠ 724 = 563  
 ♠ 826 = 682  
 ♠ 953 = 486  
 ♠ 816 = ?

A) 974 B) 794 C) 749 D) 674 E) 772

8. 8 ▼ 6 ■ 4 ● 5 = 22  
 10 ■ 7 ▼ 2 ● 8 = 1  
 13 ■ 2 ● 6 ▼ 4 = 21  
 9 ● 3 ▼ 1 ■ 6 = ?

A) 6 B) 12 C) 22 D) 32 E) 36

11. 3641 → 27  
 2466 → 36  
 8192 → 26  
 2597 → ?

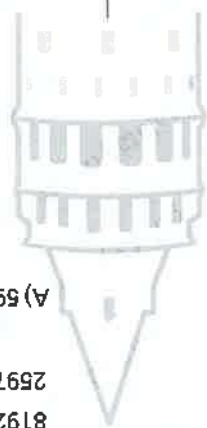
A) 59 B) 73 C) 53 D) 28 E) 23

9. (6 # 8) × 6 × 4 = 4  
 (9 × 3) # 5 × 2 = 13  
 (4 × 3) # 8 × 4 = 2  
 (2 # 6) × 9 × 3 = ?

A) 8 B) 9 C) 10 D) 11 E) 12

12. ○ - ◇ = 11  
 ◇ + ☆ = 14  
 ○ + ◇ = 21  
 ◇ + ☆ = 17  
 ○ + ◇ + ☆ = ?

A) 38 B) 50 C) 59 D) 66 E) 71



13. 17 -  $\downarrow$  =  $\Rightarrow$ 48 +  $\downarrow$  =  $\Rightarrow$  -333 +  $\downarrow$  =  $\Rightarrow$  4 ·  $\downarrow$  +  $\Rightarrow$  $\Rightarrow$  +  $\downarrow$  = ?

A) -1 B) 72 C) 17 D) 71 E) 27

14. ■ 73 = 910

■ 69 = 816

■ 57 = 714

■ 36 = ?

A) 109 B) 193 C) 113 D) 613 E) 513

16. [(x ≠ t) ≠ (z ≠ k)] = ?

A) t

B) x

C) y

D) z

E) k

z ≠ z = y  
k ≠ k = y

≠	x	y	z	t	k
x	t	x	k	y	z
y	k	y	x	z	t
z	x	z	y	t	k
t	y	t	z	k	x
k	z	k	t	x	y

16-17. soruları aşağıdaki bilgilere göre cevaplanacaktır.  
Answer 16th and 17th questions according to the following information.

Özellik Feature

15.  $5k \times \frac{3l}{4} = 7k + l$  $k^2 \times l^3 = k^3 + l^2$  $(20 \times 48) - (16 \times 8) = ?$ 

A) 26 B) 25 C) 24 D) 23 E) 22

17. z ≠ (x ≠ a) = x

a = ?

A) x

B) y

C) z

D) t

E) k

18.  $11 \times 4 = 34$   
 $14 \times 9 = 55$   
 $17 \times 13 = 73$   
 $16 \times 8 = ?$

A) 16 B) 26 C) 36 D) 46 E) 56

19. 397 → 973  
 846 → 846  
 513 → 513  
 284 → ?

A) 842 B) 428 C) 284 D) 824 E) 482

22. 23 42 25 82 27 ?

A) 19 B) 26 C) 43 D) 44 E) 72

20. 7 39 8 17 4 15 7 13 5 ?

A) 22 B) 23 C) 24 D) 25 E) 30

23. 298 765 429 876 542 ?

A) 987 B) 765 C) 683 D) 502 E) 444



21. 987 783 581 405 ?

A) 100 B) 80 C) 60 D) 40 E) 20

25. 15 20 21 16 32 37 ... 48 49 54

A) 51 B) 52 C) 53 D) 54 E) 55

27. ACAYIP 111001  
ADALAR 101000  
ALANYA 111010  
LALELI 101110

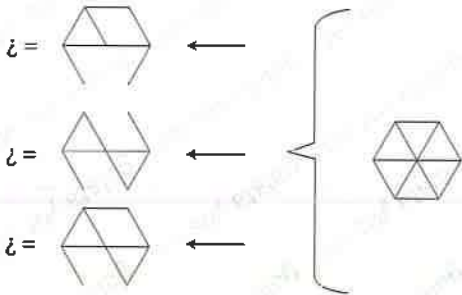
A) 110101 B) 101100 C) 110001  
D) 100101 E) 100011

ALPAKA = ?

24. 16 15 23 24 17 52 ?

A) 43 B) 54 C) 82 D) 93 E) 104

26.



A) 556 B) 823 C) 923 D) 729 E) 249

28.  $\overbrace{KLMN} = KMLN$ ,  $\overbrace{KLMN} = NLMK$ ,  $\overbrace{KLMN} = LKNM$   
 $\overbrace{7K2N} + \overbrace{7NK2} - \overbrace{K72N} = 9827$   
 $N - K = ?$   
 A) 1 B) 2 C) 3 D) 4 E) 5

29. SARIK, ZASAK, SASAK, SAZGI, SÜRGE ve ZARGI kelimeleri rakamlarla kodlanmıştır. Buna göre aşağıdaki kodlardan hangisi ZARGI kelimesine aittir?  
 Which of following codes belongs to ZARGI  
 A) 19768 B) 19480 C) 79468 D) 79190 E) 13462

## Matematik Maths

1.  $\frac{(x+y)^2 - x - y}{x+y} = 4$   
 $= x + y = ?$

- A) 2 B) 3 C) 4 D) 5 E) 6

30. NERİNA 518645  
 SENERİ 608964  
 SİRNAS 430895  
 AŞERİS 243481  
 BAŞARI 506089  
 AŞERİS = ?  
 A) 518645 B) 608964 C) 430895 D) 243481 E) 506089



2.  $x^3 + x^2 + x + 1$

İfadesinin garpanlarından biri hangisidir?

What is one of the multipliers of expression?

- A)  $x^2 - 1$  B)  $x^2 + 1$  C)  $x - 1$   
 D)  $x^3 - 1$  E)  $x$

3.  $\frac{x^2 + 2x - 3}{3x^2 - 4x - 4} \cdot \frac{x^2 + x - 6}{3x^2 + 2x} = ?$

A)  $\frac{x-1}{x+2}$

B)  $1 - \frac{x}{1}$

D)  $\frac{x}{1}$

C)  $\frac{3x+2}{x}$

E)  $\frac{x+2}{1}$

6.  $\frac{x^2 + xy^2}{x^2 + xy^2} = ?$

A)  $x$

B)  $y$

C)  $x \cdot y$

D)  $x^2$

E)  $y^2$

4.  $\frac{x^2 + 4x + m}{x^2 + 2x + 1}$

İfadesinin en sade biçimi  $\frac{x+6}{x+4}$  olduğuna göre  $m + 1$  kaçtır?since the simplest form of the expression is  $\frac{x+6}{x+4}$  what is  $m + 1$ ?

- A) -20 B) -10 C) -8 D) 10 E) 20

7.  $\frac{a}{b} + \frac{a}{b} = 6 \Rightarrow \frac{b}{(a-b)^2} = ?$

A) 3

B) 4

C) 5

D) 6

E) 8

5.  $\frac{x^3 - 8}{x^2 + 2x + 4} : \frac{x^2 - 3x + 2}{x^2 - 1} = ?$

A)  $\frac{x-1}{x-2}$

B)  $\frac{x-2}{x+1}$

D)  $x + 1$

E)  $x - 2$

C)  $\frac{x}{x+1}$



8.  $x^2 - y^2 - 2y - 1 - \frac{x^2 - y^2}{x - y} - \frac{x - y - 1}{x - y} = ?$

- A) -1  
B) 1  
C)  $x + y$   
D)  $x - y$   
E)  $x + 1$

9.  $x + \frac{x}{1} = 7$

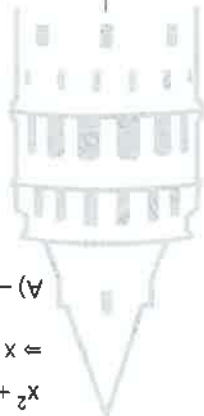
$\Rightarrow x - \frac{x}{1}$  in pozitif degeri kacdir ?  
 $\Rightarrow$  what is the positive value of  $x - \frac{x}{1}$

- A)  $2\sqrt{5}$   
B)  $3\sqrt{5}$   
C)  $2\sqrt{7}$   
D) 5  
E)  $\sqrt{46}$

10.  $x^3 + 3x^2y + 3xy^2 + 27 - y^3 = 27 - y^3 = x^2 + 2xy + y^2 = ?$

- A) 11  
B) 12  
C) 13  
D) 14  
E) 15

13.  $x = \sqrt[3]{5} - 1 = x^3 + 3x^2 + 3x + 7 = ?$



12.  $x, y, z \in \mathbb{R}$

$$x^2 + y^2 + z^2 - 6x + 8y - 2z + 26 = 0$$

$$\Rightarrow x + y + z = ?$$

- A) -4  
B) -3  
C) 0  
D) 2  
E) 5

11.  $\sqrt{15.17.19.21+16} = ?$

- A) 324  
B) 225  
C) 319  
D) 220  
E) 219

$$14. (2^x - 1)(2^x + 1)(4^x + 1)(16^x + 1) = 16^{18} - 1$$

$$\Rightarrow x = ?$$

- A) 5 B) 6 C) 7 D) 8 E) 9

$$17. 4 - \frac{4 - \frac{4 - \frac{4 - \frac{4 - 1}{2}}{2}}{2}}{16} = \frac{3x - 2}{3x + 2} = ?$$

- A)  $\frac{1}{2}$  B)  $\frac{2}{3}$  C) 1 D) 2 E) 3

$$15. \frac{a^2 + b^2 + 4a + 7}{42} = ?$$

İfadesinin alabileceği en büyük değer kaçtır ?

what is the biggest value that can the expression get?

- A) 10 B) 12 C) 14 D) 16 E) 18

18. Toplamları 100 olan iki sayıdan büyüğünün yarısı ile küçüğünün toplamı 65 tir. Buna göre küçük sayının yarısı ile büyük sayının toplamı kaçtır ?

The sum of 2 numbers is 100, the sum of half the big number and the small one is 65. Accordingly, what is

the sum of the big number and of half the small number?

- A) 60 B) 65 C) 70 D) 75 E) 85

$$19. x = (2^3)^4$$

$$y = 2^{(3^4)}$$

$$z = (2^{12})^3$$

x, y, z sıralaması aşağıdakilerden hangisidir ?  
Which of the following is x,y,z order ?

- A)  $z < x < y$   
B)  $z < y < x$   
C)  $y < x < z$   
D)  $x < y < z$   
E)  $x < z < y$

$$16. A = \frac{10}{12} + \frac{11}{13} - \frac{17}{16}, B = \frac{11}{12} + \frac{14}{13} - \frac{17}{18}$$

$$\Rightarrow A+B = ?$$

- A) -1 B) 0 C) 1 D) 2 E) 3

20.  $\left( \frac{3-x}{5-y} \right)^{x+y} \cdot \left( \frac{5-y}{3-x} \right)^{x+y} = ?$

- A)  $\frac{5}{3}$
- B)  $\left( \frac{5}{3} \right)^{x+y}$
- C)  $\left( \frac{3}{5} \right)^{x^2-y^2}$
- D) 1
- E)  $5^{x-y}$

21.  $(x+2)^{x^2+x-1} = 1 \Rightarrow \sum x = ?$

- A) -1
- B) -2
- C) -3
- D) -4
- E) -5

22.  $\frac{\sqrt{5}-1}{\sqrt{5}+1} + \frac{\sqrt{5}+1}{\sqrt{5}-1} = ?$

- A) 3
- B)  $\sqrt{5}$
- C)  $12-4\sqrt{5}$
- D)  $12+4\sqrt{5}$
- E) 12

25.  $\sqrt{4,9} + \sqrt{0,9} = ?$

- A) 1
- B) 10
- C)  $\sqrt{10}$
- D)  $5\sqrt{10}$
- E)  $10\sqrt{10}$

24.  $\frac{\sqrt{9a+1}}{\sqrt{9a-3b}} = 27 \Rightarrow b^b = ?$

- A) 2
- B) 4
- C) 3
- D) 9
- E) 16

23.  $\sqrt[4]{0,0081} + \sqrt{0,04} = ?$

- A) 2,5
- B) 1,5
- C) 1
- D) 0,5
- E) 0,1

26.  $\sqrt{a+2} - \sqrt{a-2} = x$

D)  $\frac{x}{4}$

A)  $4+x$

B)  $4-x$

C)  $\frac{4}{x}$

E)  $4x$

$\sqrt{a+2} + \sqrt{a-2} = ?$

29.  $\sqrt[3]{28-16\sqrt{3}} = ?$

A)  $2+2\sqrt{3}$

B)  $2-2\sqrt{3}$

C)  $\sqrt{3}+2$

D)  $\sqrt{3}-1$

E)  $\sqrt{3}+1$

27.  $\sqrt{4-\sqrt{7}} - \sqrt{4+\sqrt{7}} = ?$

A)  $-\sqrt{3}$  B)  $-\sqrt{2}$  C)  $\sqrt{2}$  D)  $\sqrt{3}$  E) 2

30.  $\frac{\sqrt{7+\sqrt{5}+2}}{\sqrt{7-\sqrt{5}+1}} = ?$

A)  $\sqrt{7}-\sqrt{5}$

B)  $\sqrt{7}+\sqrt{5}$

C)  $2\sqrt{7}-\sqrt{5}$

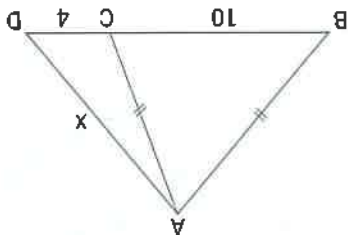
D)  $\sqrt{7}+\sqrt{5}+1$

E) 3

28.  $\frac{\sqrt{1+\sqrt{3}}}{1} + \frac{\sqrt{3+\sqrt{5}}}{1} + \frac{\sqrt{5+\sqrt{7}}}{1} + \dots + \frac{\sqrt{79+\sqrt{81}}}{1} = ?$

A) -7 B) -5 C) 4 D) 5 E) 7

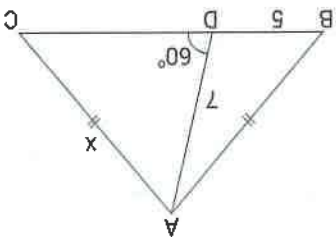
1.  $|AB| = |AC| = 13$   
 $|CD| = 4$   
 $|BC| = 10$   
 $x = ?$



- A) 11 B) 12 C) 13 D) 14 E) 15

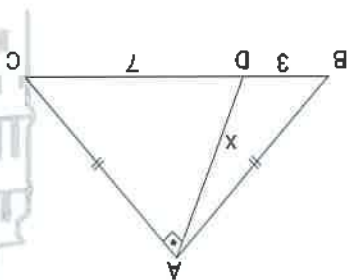
3.

- $|AB| = |AC|$   
 $|BD| = 5$   
 $|AD| = 7$   
 $m(\widehat{ADC}) = 60^\circ$   
 $|AC| = x = ?$



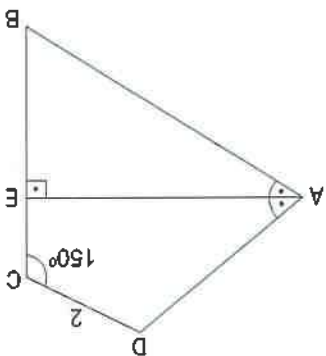
- A) 10 B)  $\sqrt{109}$  C) 11 D)  $\sqrt{131}$  E) 13

2. ABC bir üçgen  
 $|AB| = |AC|$   
 $|BD| = 3$   
 $|CD| = 7$   
 $[AD] \perp [AC]$   
 $x = ?$



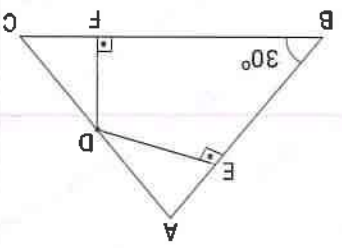
- A) 4 B) 5 C) 6 D)  $\sqrt{14}$  E)  $\sqrt{15}$

4.  $m(\widehat{BAE}) = m(\widehat{EAD})$   
 $[AE] \perp [BC]$   
 $m(\widehat{BCD}) = 150^\circ$   
 $|CD| = 2$   
 $|CE| = 3\sqrt{3}$   
 $|EB| = 5\sqrt{3}$   
 $Q(ABCD) = ?$   
 perimeter



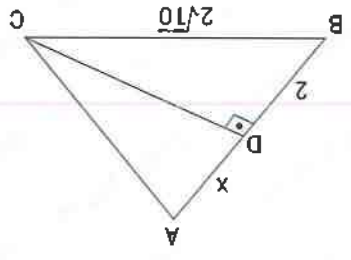
- A)  $20 + 8\sqrt{3}$  B)  $16 + 8\sqrt{3}$  C)  $16 - 8\sqrt{3}$   
 D)  $20 - 8\sqrt{3}$  E)  $10 + 8\sqrt{3}$

6. ABC bir üçgen  
 $|AB| = |BC|$   
 $m(\widehat{ABC}) = 30^\circ$   
 $|DE| = 4$   
 $|DF| = 2$   
 $|BC| = ?$



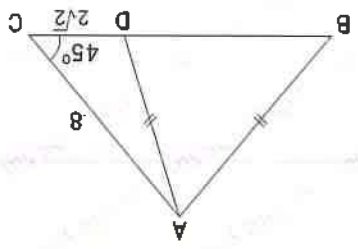
- A) 12 B) 13 C) 14 D) 15 E) 16

8.  $[AB] \perp [DC]$   
 $|AB| = |AC|$   
 $|BD| = 2$   
 $|BC| = 2\sqrt{10}$   
 $|AD| = ?$



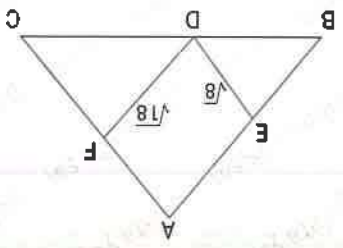
- A) 7 B) 8 C) 9 D) 10 E) 11

5.  $|AB| = |AD|$   
 $m(\widehat{BCA}) = 45^\circ$   
 $|CD| = 2\sqrt{2}$   
 $|AC| = 8$   
 $|BC| = ?$



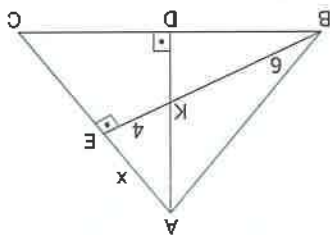
- A)  $3\sqrt{2}$  B)  $4\sqrt{2}$  C)  $5\sqrt{2}$  D)  $6\sqrt{2}$  E)  $7\sqrt{2}$

7.  $[AB] \parallel [DE]$   
 $[DE] \parallel [AC]$   
 $|AB| = |AC|$   
 $|AB| = ?$



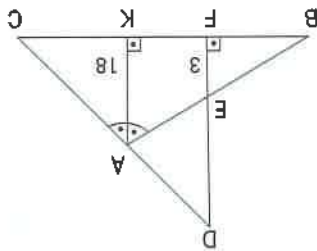
- A)  $4\sqrt{2}$  B)  $5\sqrt{2}$  C)  $6\sqrt{2}$  D)  $7\sqrt{2}$  E) 16

9.  $\widehat{AC} \perp BC$   
 $\widehat{AD} \perp BC$   
 $|AC| = |BC|$   
 $|KE| = 4$   
 $|BK| = 6$   
 $|AE| = x = ?$



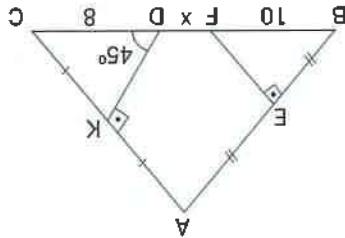
- A)  $2\sqrt{2}$  B)  $2\sqrt{3}$  C)  $2\sqrt{5}$  D)  $3\sqrt{6}$  E)  $4\sqrt{5}$

10.  $\widehat{BAK} = \widehat{KAC}$   
 $\widehat{DE} \perp BC$   
 $\widehat{AK} \perp BC$   
 $|EF| = 3$   
 $|AK| = 18$   
 $|DE| = ?$



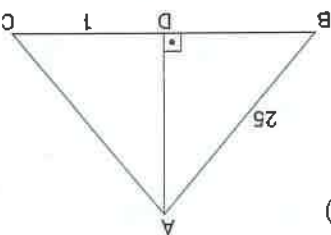
- A) 18 B) 20 C) 24 D) 26 E) 30

11.  $|AE| = |BE|$   
 $|AK| = |KC|$   
 $m(\widehat{DC}) = 45^\circ$   
 $\widehat{AC} \perp DK$   
 $\widehat{EF} \perp AB$   
 $|CD| = 8$   
 $|BF| = 10$   
 $x = ?$



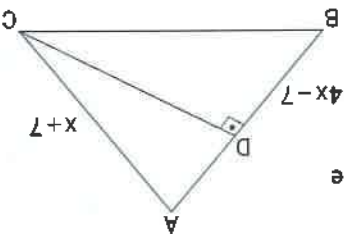
- A) 6 B) 7 C) 8 D) 9 E) 10

12.  $m(\widehat{ABC}) = 2 m(\widehat{DAC})$   
 $\widehat{AD} \perp BC$   
 $|CD| = 1$   
 $|AB| = 25$   
 $|AC| = ?$



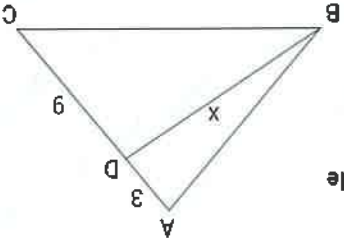
- A) 7 B) 8 C) 24 D)  $5\sqrt{2}$  E)  $5\sqrt{3}$

13. ABC eşkenar üçgen  
 $|AC| = x + 7$   
 $|BD| = 4x - 7$   
 $\widehat{AB} \perp CD$   
 $|BC| = ?$



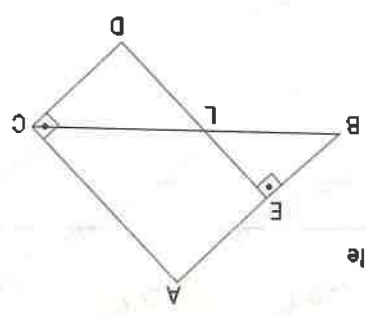
- A) 7 B) 8 C) 9 D) 10 E) 12

14. ABC eşkenar üçgen  
 $|AD| = 3$   
 $|CD| = 9$   
 $x = ?$



- A)  $\sqrt{13}$  B)  $2\sqrt{13}$  C)  $3\sqrt{13}$  D)  $4\sqrt{13}$  E)  $5\sqrt{13}$

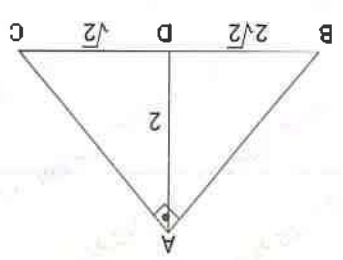
15. ABC eşkenar üçgen  
ABC equilateral triangle



- $|EL| = 2/\sqrt{3}$
- $|CD| = \sqrt{3}$
- $[AC] \perp [CD]$
- $[AB] \perp [DE]$
- $|AE| = ?$

- A) 20 B) 21 C) 22 D) 23 E) 24

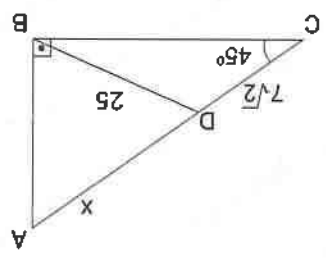
18.  $[AB] \perp [AC]$



- $|CD| = \sqrt{2}$
- $|BD| = 2\sqrt{2}$
- $|AD| = 2$
- $|AB| = ?$

- A) 2 B) 3 C)  $2\sqrt{2}$  D)  $2\sqrt{3}$  E)  $2\sqrt{6}$

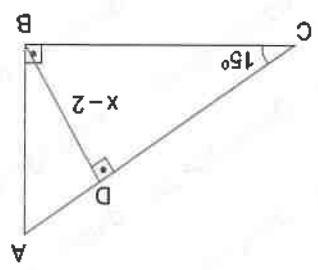
16.  $[AB] \perp [BC]$



- $m(\widehat{ACB}) = 45^\circ$
- $|CD| = 7\sqrt{2}$
- $|BD| = 25$
- $|AD| = x = ?$

- A)  $20\sqrt{2}$  B)  $22\sqrt{2}$  C)  $24\sqrt{2}$  D)  $25\sqrt{2}$  E)  $26\sqrt{2}$

17.  $[AB] \perp [BC]$

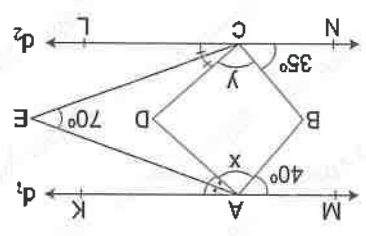


- $[AC] \perp [BD]$
- $m(\widehat{ACB}) = 15^\circ$
- $|AC| = 20$
- $|BD| = x - 2$
- $x = ?$

- A) 7 B) 8 C) 9 D) 10 E) 12

20.

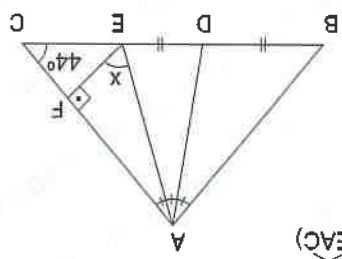
- $d_1 \parallel d_2$
- $m(\widehat{KAE}) = m(\widehat{EAD})$
- $m(\widehat{ECL}) = m(\widehat{ECD})$
- $m(\widehat{AEC}) = 70^\circ$
- $m(\widehat{MAB}) = 40^\circ$
- $m(\widehat{BCN}) = 35^\circ$
- $x + y = ?$



- A) 100 B) 115 C) 125 D) 135 E) 145

19.

- $m(\widehat{BAD}) = m(\widehat{DAE}) = m(\widehat{EAC})$
- $[EF] \perp [AC]$
- $m(\widehat{BCA}) = 44^\circ$
- $|BD| = |DE|$
- $x = ?$



- A) 66 B) 67 C) 68 D) 69 E) 70



# Başarıya Götüren



Mat	Problem Solving / Problem	Mat	Order of Operations and Rational Numbers	Mat	Order of Operations and Rational Numbers
Geo	Area of Triangles	Geo	Area of Triangles	Geo	Area of Triangles
Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles

Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles
Geo	Area of Triangles	Geo	Area of Triangles	Geo	Area of Triangles
Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles

Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles
Geo	Area of Triangles	Geo	Area of Triangles	Geo	Area of Triangles
Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles

Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles
Geo	Area of Triangles	Geo	Area of Triangles	Geo	Area of Triangles
Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles

Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles
Geo	Area of Triangles	Geo	Area of Triangles	Geo	Area of Triangles
Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles

Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles
Geo	Area of Triangles	Geo	Area of Triangles	Geo	Area of Triangles
Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles

Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles
Geo	Area of Triangles	Geo	Area of Triangles	Geo	Area of Triangles
Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles

Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles
Geo	Area of Triangles	Geo	Area of Triangles	Geo	Area of Triangles
Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles

Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles
Geo	Area of Triangles	Geo	Area of Triangles	Geo	Area of Triangles
Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles

Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles
Geo	Area of Triangles	Geo	Area of Triangles	Geo	Area of Triangles
Mat	Area of Triangles	Mat	Area of Triangles	Mat	Area of Triangles

## KTS-6

Mat	Basit Eşitlik ve Mutlak Değer	Mat	Basit Eşitlik ve Mutlak Değer
IO	Sayı Bağımları / Number Relations	IO	Sayı Bağımları / Number Relations
Geo	Açıortay / Bisector	Geo	Açıortay / Bisector

Mat	İşlem Önceliği ve Rasyonel Sayılar	Mat	İşlem Önceliği ve Rasyonel Sayılar
IO	Şifreler / Passwords	IO	Şifreler / Passwords
Geo	Açılar / Angles	Geo	Açılar / Angles


Mat	Çarpımları Ayrma / Factorization	Mat	Çarpımları Ayrma / Factorization
IO	İşlemler / Operations	IO	İşlemler / Operations
Geo	İkizkenar ve Eşkenar Üçgen	Geo	İkizkenar ve Eşkenar Üçgen

Mat	Birinci Dereceden Denklemler	Mat	Birinci Dereceden Denklemler
IO	Sayı Örüntüleri / Number Patterns	IO	Sayı Örüntüleri / Number Patterns
Geo	Üçgenin Açılar / Angles in Triangles	Geo	Üçgenin Açılar / Angles in Triangles

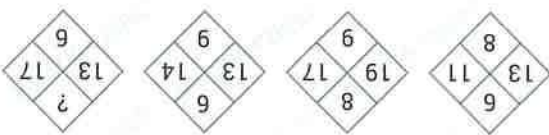
Mat	Kökü Sayılar / Radical Expressions	Mat	Kökü Sayılar / Radical Expressions
IO	İşlemler / Operations	IO	İşlemler / Operations
Geo	Üçgen (Çift) / Right Triangle	Geo	Üçgen (Çift) / Right Triangle

Mat	Üslü Sayılar / Exponential Expressions	Mat	Üslü Sayılar / Exponential Expressions
IO	Sayı Örüntüleri / Number Patterns	IO	Sayı Örüntüleri / Number Patterns
Geo	Üçgen / Right Triangle	Geo	Üçgen / Right Triangle

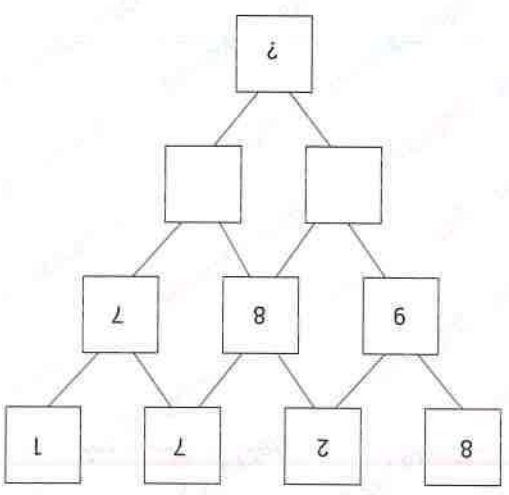
10

1. 

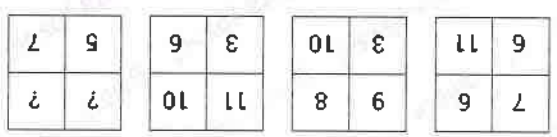
A) 16:43      C) 16:07  
 B) 16:27      D) 15:49  
 E) 15:27

2. 

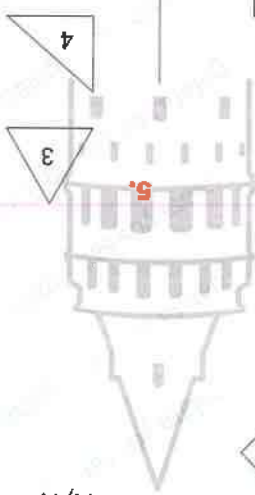
A) 4      B) 5      C) 7      D) 8      E) 10



A) 17      B) 23      C) 29      D) 33      E) 37

3. 

A) 13 11      C) 11 12  
 B) 8 10      D) 7 6  
 E) 8 5

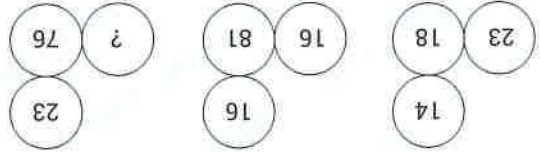
5. 

A) 326427      C) 64881  
 B) 646481      D) 166481  
 E) 32881

2      8      3  
 4      5      2  
 3      6      3  
 2      3      8

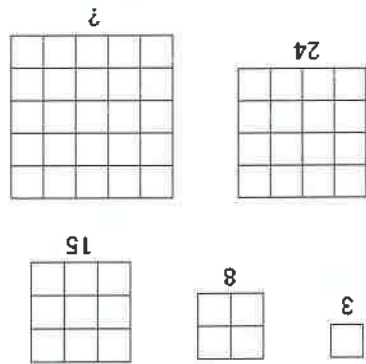
= 2716243      = 641256      = ?

A) 81 B) 64 C) 49 D) 36 E) 25



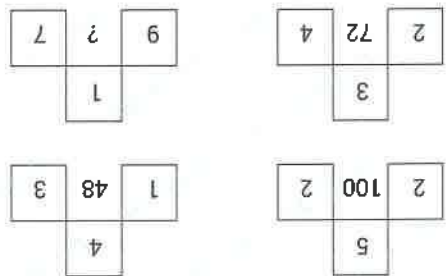
8.

A) 25 B) 33 C) 35 D) 49 E) 81



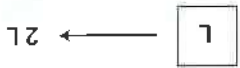
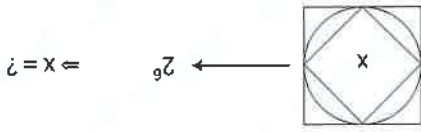
7.

A) 100 B) 89 C) 76 D) 63 E) 54



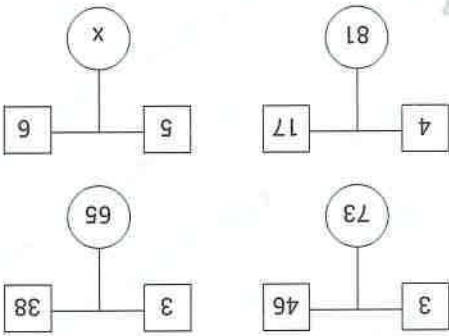
6.

A) 2 B) 5 C) 8 D)  $\sqrt{5}$  E)  $\sqrt{8}$



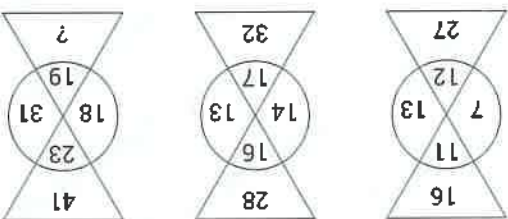
11.

A) 82 B) 96 C) 103 D) 120 E) 131



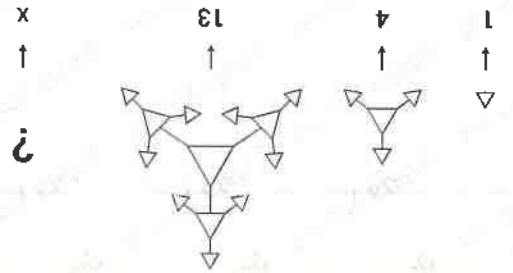
10.

A) 50 B) 47 C) 43 D) 39 E) 38

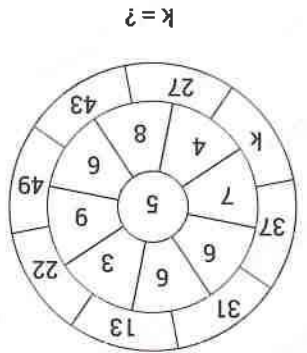


9.

12.



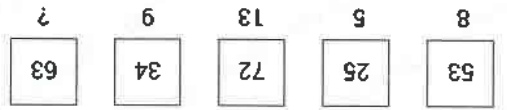
13.



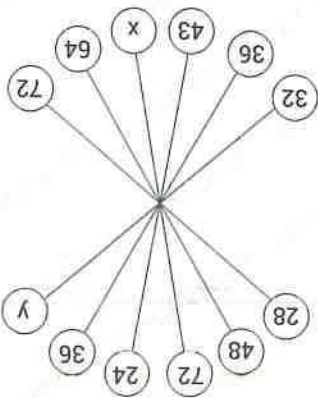
A) 23 B) 25 C) 27 D) 29 E) 31

k = ?

14.



15.



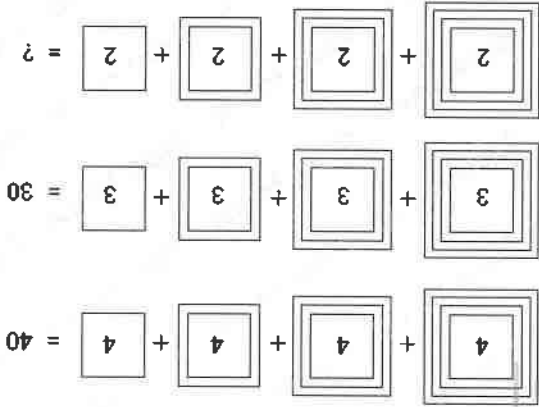
A) x = 49 y = 18

C) x = 66 y = 12

B) x = 49 y = 24

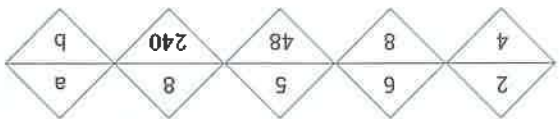
D) x = 66 y = 18

E) x = 81 y = 12



A) 24 B) 23 C) 22 D) 21 E) 20

17.



- A)  $a = 6$   
 $b = 1920$
- B)  $a = 6$   
 $b = 2840$
- C)  $a = 14$   
 $b = 1920$
- D)  $a = 14$   
 $b = 2840$
- E)  $a = 8$   
 $b = 480$

18.

5	4	2	7
9	6	4	8
6	4	3	2
4	6	?	3

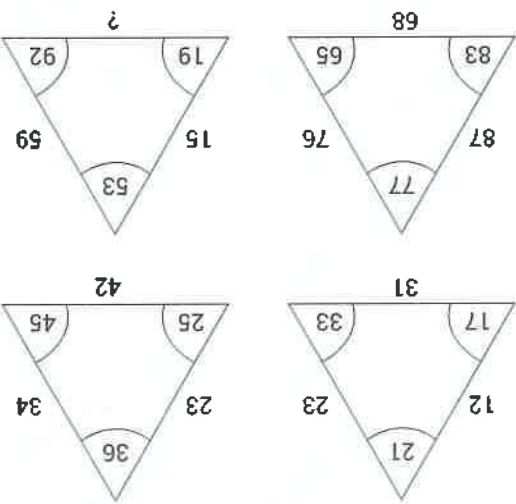
- A) 1
- B) 2
- C) 3
- D) 4
- E) 5

19.

6	2	6	3
2	5	2	3
4	3	4	6
3	?	7	2

- A) 5
- B) 4
- C) 3
- D) 2
- E) 1

20.



- A) 91
- B) 92
- C) 56
- D) 65
- E) 32

22.

- 346 → 36
- 721 → 16
- 374 → 49
- 527 → ?

- A) 24
- B) 25
- C) 35
- D) 36
- E) 81

21.

- $6x + b = 3 + 3b$
- $3x + 8 = 15$
- $9x + 4 = 21$
- $12x + 3 = ?$

- A) 20
- B) 21
- C) 22
- D) 23
- E) 24



23.  $12 \spadesuit 72 = 4$   
 $13 \spadesuit 83 = 3$   
 $86 \spadesuit 23 = 2$   
 $64 \spadesuit 52 = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

24.  $\spadesuit \cdot \spadesuit = \spadesuit$   
 $\spadesuit \cdot \heartsuit = 25$   
 $\heartsuit \cdot \heartsuit = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

25.  $\frac{6}{3}, 1, 1\frac{1}{3}, 4, 4\frac{1}{2}, 18, ?$   
 A)  $18\frac{6}{4}$   
 B)  $18\frac{3}{4}$   
 C)  $112\frac{3}{4}$   
 D)  $112\frac{6}{4}$   
 E) 112



27. 140 353 566 779 ?

- A) 9812 B) 8761 C) 1024  
 D) 999 E) 816

26. 4, 12, 16, 11, 36, 25, 20, 24 ?

- A) 26 B) 28 C) 30 D) 32 E) 34

145 siraya aşağıdaki dizilimlerden hangisi gelmelidir ?  
 Which of the following sequences should come in 145?

145 ?	?	?	?	?	?	?	?	?	?	?	?
.	.	.	.	.	.	.	.	.	.	.	.
7. M A S Y R E L	6. L M A S Y R E	5. E L M A S Y R	4. R E L M A S Y	3. Y R E L M A S	2. S Y R E L M A	1. A S Y R E L M					

- A) ASYRELM  
 B) SYRELMA  
 C) YRELMAS  
 D) RELMASY  
 E) ELMASYSR

29. Dijital bir göstergede rakamları göstermek için kullanılan çizgi sayısı aşağıdaki tabloda verilmiştir.

The number of lines used to display numbers in a digital display is given in the table below.

9	8	7	6	5	4	3	2	1	0
5	7	6	6	4	5	6	3	2	5

12 çizgi kullanılarak oluşturulabilecek rakamların farkları en küçük 3 basamaklı sayı aşağıdakilerden hangisidir? Which of the following is the smallest three digit number whose numbers can be formed using twelve lines?

- A) 109 B) 165 C) 104 D) 102 E) 100

30.  $ABDIN + AZARİ = ARİBİN$

$GAYYUR + HOORDAT = ?$

- A) ORYAR B) ORDAUR C) ORDARY D) ORUYAR E) ORDGAT

### Matematik Maths

$$1. \frac{x+3}{2} - 2 \leq \frac{x+1}{3}$$

1. eşitsizliğin çözüm kümesi hangisidir?

what is the solution set of the inequality?

- A)  $[0,4)$  B)  $[-5,0)$  C)  $(-\infty,5]$  D)  $(2,20)$  E)  $(-7,12)$

2.

$$x+1 < 4 \leq 3x-2$$

eşitsizliğin çözüm kümesi hangisidir?

what is the solution set of the inequality?

- A)  $(2,5)$  B)  $(3,5)$  C)  $[2,4]$  D)  $[2,3)$  E)  $(1,3)$

3.

a ve b tam sayılardır. a and b are integers

$$3 < a < 10 \text{ ve } -4 \leq b < 6$$

olduğuna göre,  $2a + 3b$  ifadesinin en küçük tam sayı değeri kaçtır?

accordingly, what is the smallest integer value of  $2a+3b$  expression?

- A) 0 B) -2 C) -3 D) -4 E) -6

4.

$m, n \in \mathbb{R}$

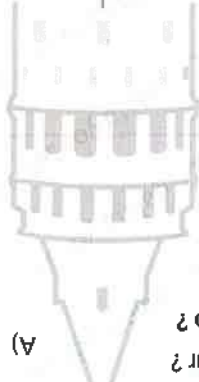
$$-3 \leq m < 2 \text{ ve } -5 \leq n < 4$$

olduğuna göre,  $m+n$  nin en büyük ve en küçük tam sayı değerleri toplamı kaçtır?

accordingly, what is the sum of the biggest and smallest integer values  $m+n$ ?

- A) -3 B) -2 C) 0 D) 2 E) 3

7.  $x < x^2 < |x|$  eşitsizliğini sağlayan değerler aşağıdakilerden hangisidir ?  
 A)  $(-\infty, -1)$  B)  $(-\infty, 0)$  C)  $(-1, 0)$  D)  $(-1, 1)$  E)  $(0, 1)$   
 which of the following value provide the inequality?
8.  $a < b$ ,  $c < 0$  ise aşağıdakilerden hangisi yanlıştır ?  
 A)  $2a < a+b$  B)  $a+b < 2b$  C)  $ac < b \cdot c$  D)  $a+c < b+c$  E)  $a < \frac{a+b}{2} < b$   
 which of the following is false ?
9.  $|2-\sqrt{5}|+|3-\sqrt{5}|-|1-\sqrt{2}|-|2|=?$   
 A)  $2-\sqrt{2}$  B)  $1-\sqrt{2}$  C)  $-2$  D)  $-\sqrt{2}$  E)  $-1$   
 accordingly, what is the minimum integer value of b ?
10.  $-3 < x < 5$  için  $|x+3|+|x-5|=?$   
 A) 8 B) 4 C)  $2x$  D)  $x-8$  E)  $2x-2$   
 olduğuna göre, b nin en küçük tam sayı değeri kaçtır ?
6.  $-4 < a \leq 2$  ve  $3a^2 + 2b = 2$   
 A)  $-10$  B)  $-15$  C)  $-20$  D)  $-22$  E)  $-23$   
 $\min(x \cdot y) + \max(x \cdot y) = ?$   
 $-3 < x \leq 4$  ve  $-4 \leq y < 6$   
 A) 4 B) 6 C) 8 D) 10 E) 13





11.  $0 < x < y$  için  $|x-y| - \sqrt{x^2 - 4xy + 4y^2} + |y| = ?$

- A)  $2x-2y$   
 B)  $2x$   
 C)  $-x$   
 D)  $2y$   
 E)  $0$

14.  $|x-3| + |x+5| = 12$  = S.S. = ?

- A)  $\{-7\}$  B)  $\{5\}$  C)  $\{7\}$  D)  $\{-7,5\}$  E)  $\{5,7\}$

12.  $|x-3|=5$  =  $x = ?$

- A)  $\{-2\}$  B)  $\{8\}$  C)  $\emptyset$  D)  $\{-2,8\}$  E) R

15.  $3 < x < 4$

$= \sqrt{x^2 - 5x + 5} + \sqrt{x^2 - 8x + 16} = ?$

- A)  $3-x$   
 B)  $2-x$   
 C)  $2+x$   
 D)  $3+x$   
 E)  $x-3$

13.  $|x-0,3| \leq 0,6$  = S.S. = ?

- A)  $\left[-\frac{3}{5}, 6\right]$   
 B)  $\left[\frac{-4}{15}, \frac{14}{15}\right]$   
 C)  $\left[\frac{15}{4}, \frac{14}{15}\right]$   
 D)  $\left[-\frac{14}{4}, \frac{15}{4}\right]$   
 E)  $\left(-\frac{14}{4}, \frac{15}{4}\right)$

16.  $\frac{5,1+2,8}{0,7+1,2} = ?$

- A) 1  
 B) 2  
 C) 4  
 D) 0,15  
 E) 0,02

17.  $x \neq 0, y \neq 0$

$$\begin{cases} 3xy + y^2 = 5y \\ 4xy - 5x^2 = 3x \end{cases} = \frac{y}{x} = ?$$

- A)  $\frac{1}{2}$
- B) 1
- C) 2
- D)  $\frac{2}{3}$
- E)  $\frac{3}{5}$

20.  $a = b^{4x-3y} = c^{4x+3y}$

$$\Rightarrow (b \cdot c)^{16x^2-9y^2} = ?$$

- A)  $a^{8y}$
- B)  $a^{8x}$
- C)  $a^{4x-3y}$
- D)  $a^{16x^2-9y^2}$
- E)  $a^{4x+3y}$

18.  $x = \left(\frac{1}{4}\right)^{\frac{1}{2}}, y = \left(\frac{1}{4}\right)^{\frac{1}{6}}, z = \left(\frac{1}{4}\right)^{\frac{1}{8}}$

İse x, y, z sıralaması nasıldır?  
which of the following is x, y, z order?

- A)  $x > y > z$
- B)  $y > x > z$
- C)  $z > x > y$
- D)  $y > z > x$
- E)  $z > y > x$

21.  $\frac{8}{\sqrt[3]{2}} = ?$

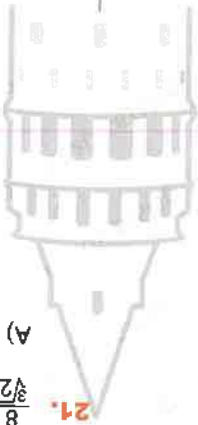
- A)  $2\sqrt[3]{2}$
- B)  $2\sqrt{2}$
- C)  $4\sqrt[3]{4}$
- D) 4
- E)  $16\sqrt[3]{2}$

22.  $\sqrt{\frac{16}{25} + \frac{1}{4}} - \frac{4}{5} = ?$

- A)  $\frac{3}{10}$
- B)  $\frac{3}{5}$
- C)  $\frac{5}{4}$
- D)  $\frac{5}{3}$
- E)  $\frac{10}{3}$

19.  $\frac{b}{a} = \frac{3}{2}, a^b = b^a = a = ?$

- A)  $\frac{1}{3}$
- B)  $\frac{3}{2}$
- C)  $\frac{9}{8}$
- D)  $\frac{8}{9}$
- E)  $\frac{27}{8}$



23.  $x < y < 0 < z$  olduğuna göre

$$\sqrt{(x-z)^2} - \sqrt{(y-z)^2} + \sqrt{(y-x)^2} = ?$$

A)  $x-y+z$

B)  $x-2y-2z$

D)  $2y-2x$

E)  $x-y+z$

24.  $a, b \in \mathbb{Z}$  ve  $\sqrt{a} + \sqrt{b} = 9$  olduğuna göre,  $a + b$  değeri

aşağıdakilerden hangisi olamaz?

since  $a, b \in \mathbb{Z}$  and  $\sqrt{a} + \sqrt{b} = 9$  which of the following

cannot be the  $a + b$  value?

A) 45

B) 53

C) 65

D) 81

E) 83

25.  $a$  ve  $b$  reel sayılar olmak üzere,

$a$  and  $b$  are real numbers,

$$a^2 + 10b^2 - 6ab - 4b + 13$$

ifadesinin alabileceği en küçük değer kaçtır?

what is the smallest value that can the expression gets?

A) 5

B) 6

C) 7

D) 8

E) 9

28.  $\frac{6x^2 - xy - y^2}{3x + y} : \frac{4x^2 - y^2}{2x^2 + xy} = ?$

A) 1

B)  $x$

D)  $\frac{x}{x+1}$

E)  $\frac{x-1}{2x+y}$

C)  $2x$

27.  $x^2 - 5x - 1 = 0 \Rightarrow (x-1) \cdot (x-2) \cdot (x-3) \cdot (x-4)$

A) 20

B) 24

C) 32

D) 35

E) 42

26.  $a \neq 0, b \neq 0$

$$\frac{1}{1} - \frac{1}{1} = \frac{4}{1}, \frac{a^2}{1} - \frac{b^2}{1} = \frac{16}{3} \Rightarrow a+b = ?$$

A) 2

B) 4

C) 6

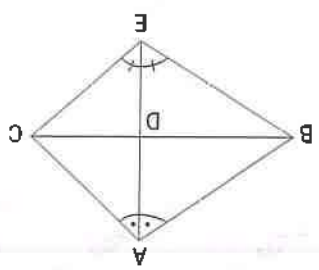
D) 8

E) 10

29.  $x+y+z=6$   
 $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 0 \Rightarrow x^2 + y^2 + z^2 = ?$

- A) 6 B) 18 C) 36 D) 48 E) 72

1.  $m(\widehat{BAD}) = m(\widehat{DAC})$   
 $m(\widehat{BED}) = m(\widehat{DEC})$   
 $2|AB| = 3|AC|$   
 $|BE| = 9$   
 $|CE| = ?$

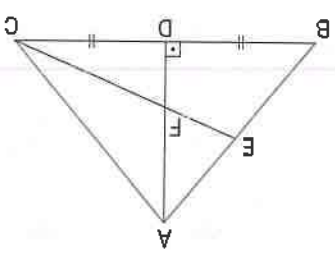


- A) 4 B) 5 C) 6 D) 7 E) 8

30.  $x+y=y+z=8 \Rightarrow x^2 - y^2 - 16z = ?$

- A) -64 B) -32 C) 16 D) 32 E) 64

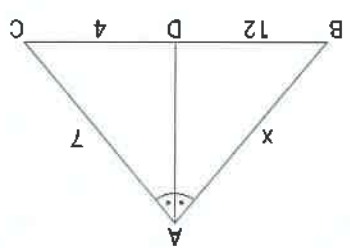
2. ABC bir üçgen  
 $[AD] \perp [BC]$   
 $|BD| = |DC|$   
 $|FC| = 4|EF|$   
 $|AC| = 16$   
 $|BE| = ?$



- A) 10 B) 11 C) 12 D) 13 E) 14

3.

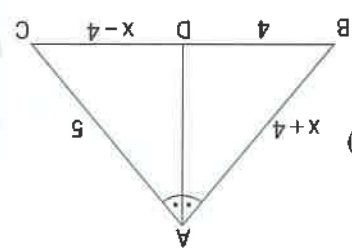
ABC bir üçgen  
 $m(\widehat{BAD}) = m(\widehat{DAC})$   
 $|DC| = 4$   
 $|AC| = 7$   
 $|BD| = 12$   
 $x = ?$



- A) 20 B) 21 C) 22 D) 27 E) 30

4.

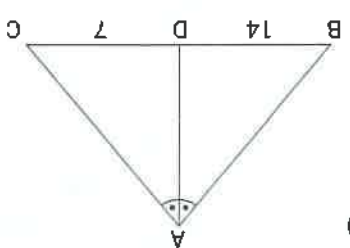
ABC bir üçgen  
 $m(\widehat{BAD}) = m(\widehat{DAC})$   
 $|BD| = 4$   
 $|AC| = 5$   
 $|AB| = x + 4$   
 $|DC| = x - 4$   
 $x = ?$



- A) 4 B) 5 C) 6 D) 7 E) 9

5.

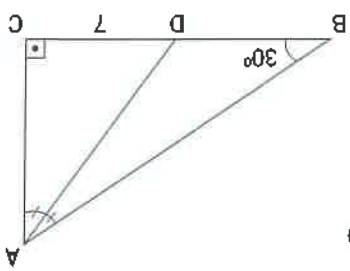
$m(\widehat{BAD}) = m(\widehat{DAC})$   
 $|DC| = 7$   
 $|BD| = 14$   
 $\hat{C}(ABC) = 60^\circ$   
 $|AC| = ?$



- A) 12 B) 13 C) 14 D) 15 E) 16

6.

$m(\widehat{BAD}) = m(\widehat{DAC})$   
 $[AC] \perp [BC]$   
 $m(\widehat{CBA}) = 30^\circ$   
 $|CD| = 7$   
 $|AC| = ?$

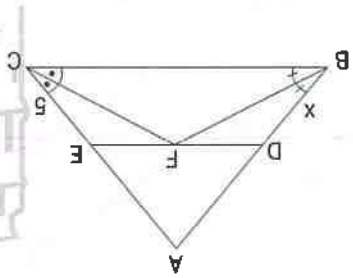


- A) 7 B)  $7\sqrt{2}$  C)  $7\sqrt{3}$  D) 14 E)  $7\sqrt{5}$

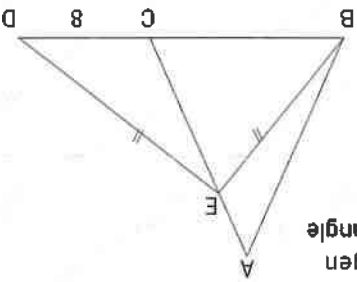
# KTS 6

## YÖS

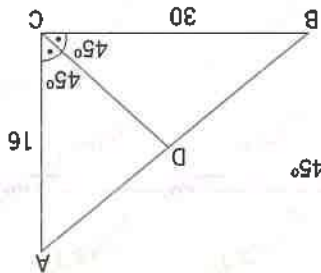
8.  $m(\widehat{ABF}) = m(\widehat{FBC})$   
 $[DE] \parallel [BC]$   
 $m(\widehat{FCA}) = m(\widehat{FCB})$   
 $|EC| = 5$   
 $|DE| = 9$   
 $x = ?$   
 A) 3 B) 4 C) 5 D) 6 E) 7



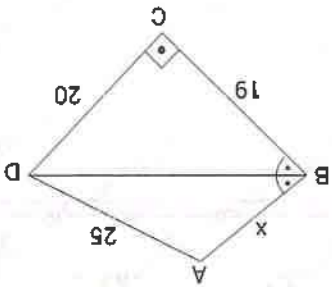
10. ABC; eşkenar üçgen  
 $BE = |ED|$   
 $|CD| = 8$   
 $|EC| = 4$   
 $\widehat{C(ABC)} = ?$   
 A) 24 B) 28 C) 30 D) 32 E) 36



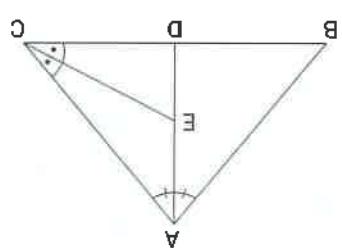
7. ABC bir üçgen  
 $m(\widehat{ACD}) = m(\widehat{DCB}) = 45^\circ$   
 $|AC| = 16$   
 $|BC| = 30$   
 $|AD| = ?$   
 A)  $\frac{270}{23}$  B)  $\frac{272}{23}$  C)  $\frac{273}{23}$  D)  $\frac{274}{23}$  E)  $\frac{275}{23}$



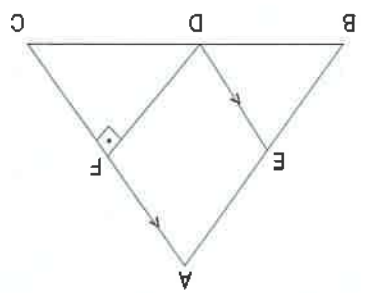
9.  $m(\widehat{ABD}) = m(\widehat{DBC})$   
 $[BC] \perp [CD]$   
 $|BC| = 19$   
 $|CD| = 20$   
 $|AD| = 25$   
 $x = ?$   
 A) 4 B) 5 C) 6 D) 7 E) 8



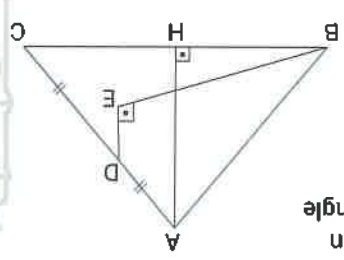
11.  $m(\widehat{BAD}) = m(\widehat{DAC})$   
 $m(\widehat{ACE}) = m(\widehat{ECB})$   
 $|AE| = 2|ED|$   
 $|AC| = 20$   
 $|BC| = 19$   
 $|AB| = ?$   
 A) 16 B) 18 C) 20 D) 22 E) 24



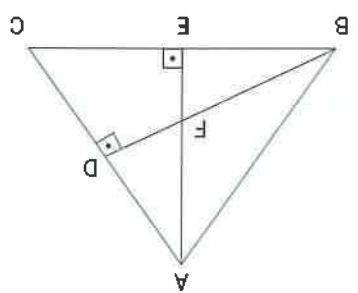
13.  $|AB| = |AC|$   
 $m(\widehat{BCA}) = 67,5$   
 $[DF] \perp [AC]$   
 $[DE] \parallel [AC]$   
 $|DE| = 4$   
 $|DF| = 3\sqrt{2}$   
 $|AC| = ?$   
 A) 4 B) 6 C) 8 D) 10 E) 12



12. ABC eşkenar üçgen  
 ABC eşkenar üçgen  
 $[DE] \perp [BE]$   
 $[AH] \perp [BC]$   
 $|DE| = 9$   
 $|AH| = 15$   
 $|BE| = ?$   
 A) 9 B) 10 C) 12 D) 14 E) 15

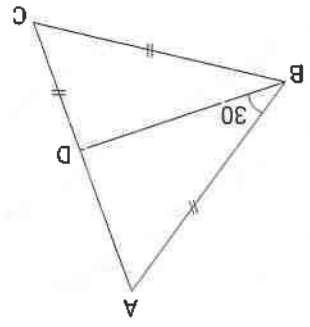


14.  $|AC| = |BC|$   
 $[BD] \perp [AC]$   
 $[AE] \perp [BC]$   
 $|BF| = 5$   
 $|AD| = 4$   
 $|AB| = ?$   
 A) 4 B) 5 C)  $4\sqrt{5}$  D)  $6\sqrt{5}$  E)  $8\sqrt{5}$



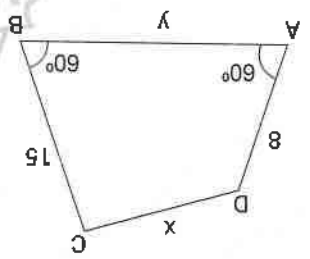
17. ABC bir üçgen  
 $|AB| = |CD| = |BC|$   
 $m(\widehat{ABD}) = 30^\circ$   
 $m(\widehat{BCA}) = ?$

- A) 25
- B) 30
- C) 35
- D) 40
- E) 45



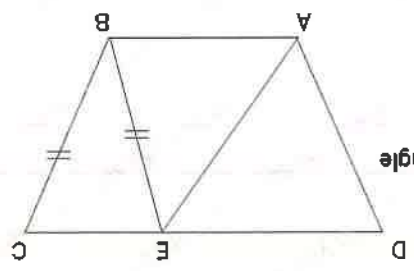
16.  $[CD] \perp [BC]$   
 $m(\widehat{DAB}) = m(\widehat{ABC}) = 60^\circ$   
 $|AD| = 8$   
 $|BC| = 15$   
 $|CD| = x$   
 $|AB| = y$   
 $y - x = ?$

- A)  $11 - 3\sqrt{3}$
- B)  $11 + 3\sqrt{3}$
- C)  $22 - 7\sqrt{3}$
- D)  $22 - 5\sqrt{3}$
- E)  $22 - 6\sqrt{3}$



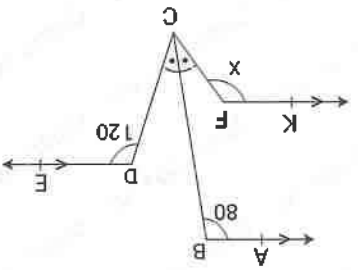
15.  $[AB] \parallel [CD]$   
 ADE eşkenar üçgen  
 ADE eşilateral triangle  
 $|BE| = |BC|$   
 $\widehat{ADE} = 30^\circ$   
 $|EC| = 2\sqrt{5}$   
 $|BC| = ?$

- A)  $\sqrt{10}$
- B) 10
- C) 20
- D)  $2\sqrt{10}$
- E)  $3\sqrt{10}$



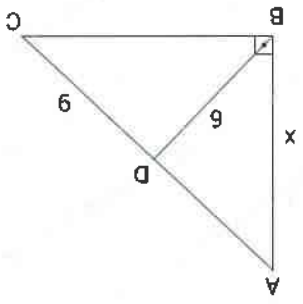
20.  $[BA] \parallel [FK] \parallel [DE]$   
 $m(\widehat{FCB}) = m(\widehat{BCD})$   
 $m(\widehat{ABC}) = 80$   
 $m(\widehat{CDE}) = 120$   
 $x = ?$

- A) 80
- B) 90
- C) 100
- D) 110
- E) 120



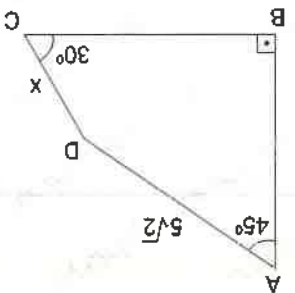
19.  $[AB] \perp [BC]$   
 $|AC| = 13$   
 $|CD| = 9$   
 $|BD| = 6$   
 $x = ?$

- A)  $\sqrt{13}$
- B)  $2\sqrt{13}$
- C)  $3\sqrt{13}$
- D)  $4\sqrt{13}$
- E)  $5\sqrt{13}$



18.  $[AB] \perp [BC]$   
 $m(\widehat{BCD}) = 30^\circ$   
 $m(\widehat{BAD}) = 45^\circ$   
 $|AD| = 5\sqrt{2}$   
 $|AB| = 12$   
 $x = ?$

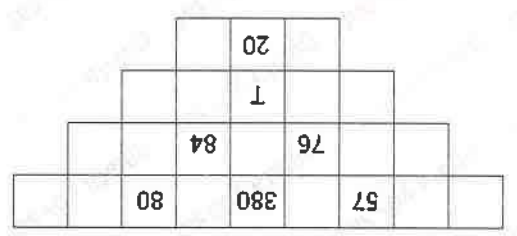
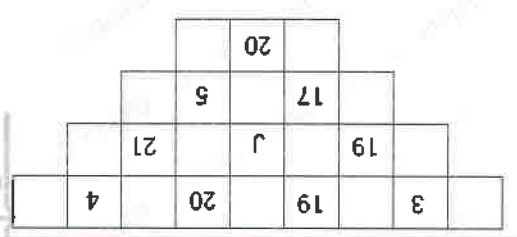
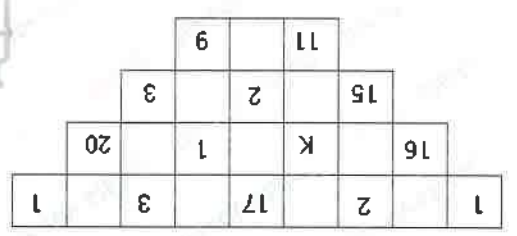
- A) 10
- B) 11
- C) 12
- D) 13
- E) 14





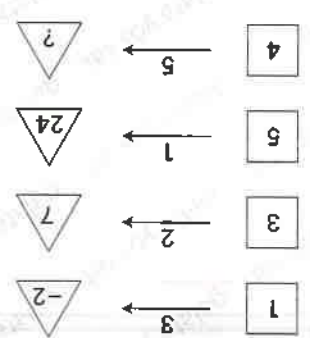


2.



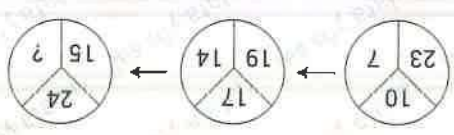
K+J+T=?  
 A) 119 B) 107 C) 92 D) 73 E) 65

1.



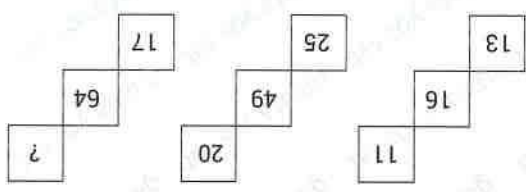
A) 11 B) 12 C) 13 D) 14 E) 15

3.



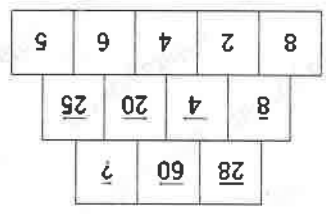
A) 25 B) 28 C) 32 D) 36 E) 40

4.

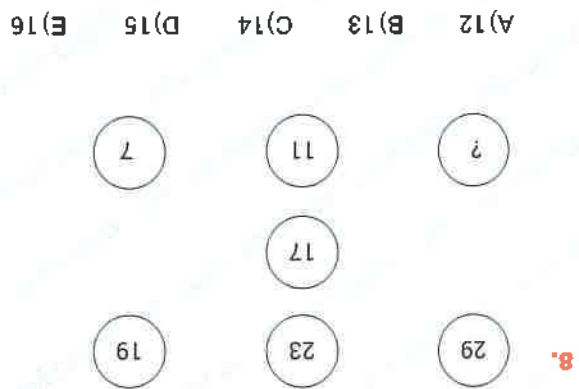
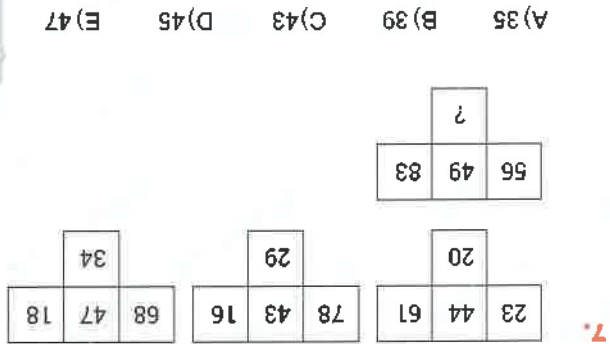
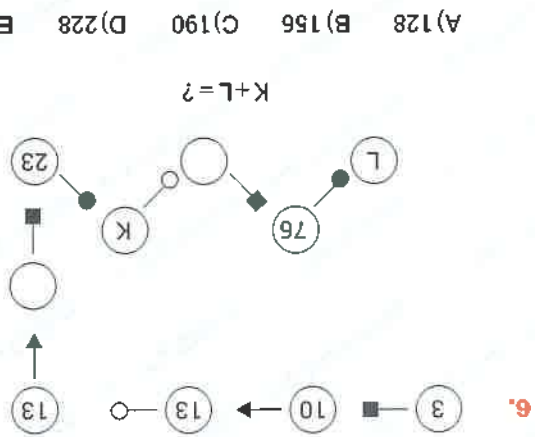


A) 11 B) 17 C) 29 D) 25 E) 31

5.



A) 440 B) 475 C) 480 D) 500 E) 520

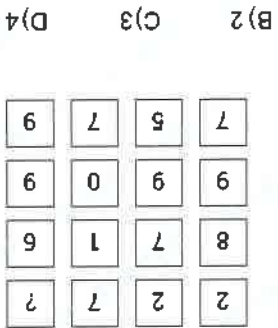
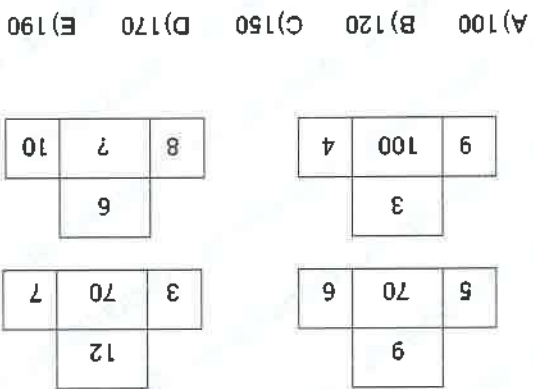


11.

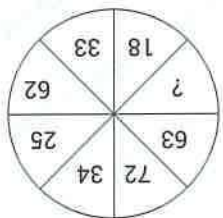


10.

9.



11. A) 23 B) 43 C) 63 D) 85 E) 94

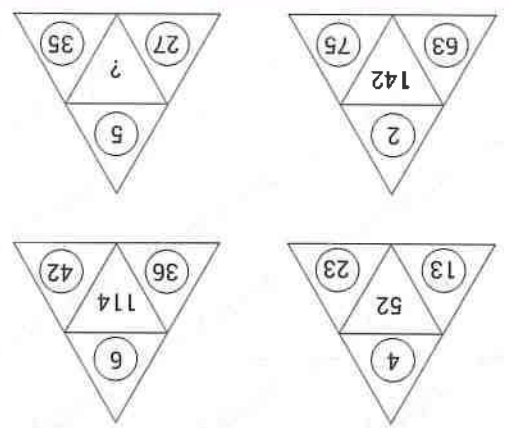


14.

64	78	25
57	48	24
76	89	?

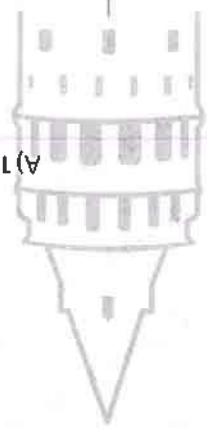
- A) 30 B) 29 C) 28 D) 27 E) 26

13.



- A) 194 B) 153 C) 120 D) 96 E) 87

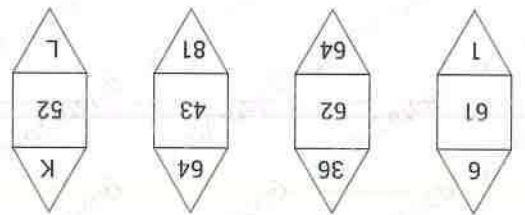
16.



2	8	2	9
4	7	5	?
6	8	4	3
3	5	9	4

- A) 1 B) 2 C) 3 D) 4 E) 5

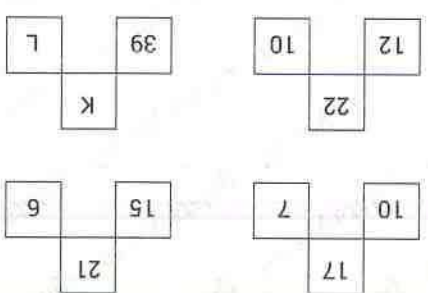
12.



- A) 211 B) 190 C) 135 D) 110 E) 57

$K+L=?$

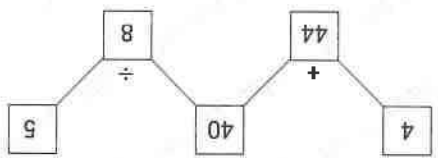
15.



$K-L=?$

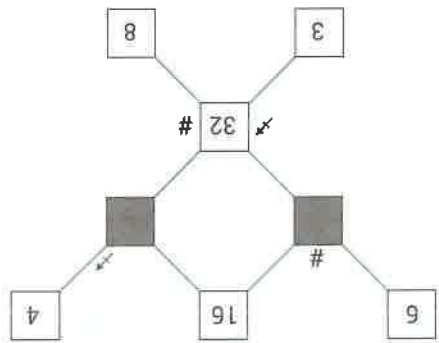
- A) 35 B) 36 C) 37 D) 38 E) 39

17 ve 18 sorular yukarıdaki örneğe göre çözülecektir.  
The 17th and 18th questions will be answered according to the example above.



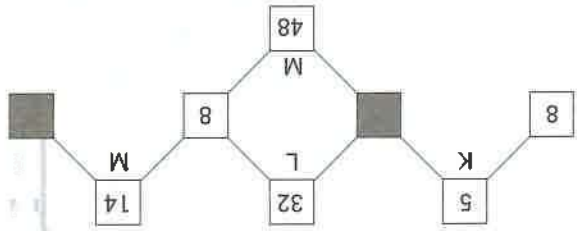
Özellik Feature

17.



- A) + -  
B) - x  
C) x +  
D) + x  
E) x +

18.



- A) x -  
B) + -  
C) x +  
D) + -  
E) x -

20.

Bir çocuk yürürken 6 adım ileri 4 adım geri adım atarak ilerlemektedir. Buna göre 30 adım ilerlemiş olmak için en az kaç adım atmalıdır ?

While a child is walking, he takes 6 steps forward and 4 steps backward. Accordingly, at least how many steps should he take to be 30 steps forward?

- A) 150 B) 180 C) 126 D) 122 E) 120

19.

E	R	Z	U	R	U	M			
4	3	3	1	3	1	4			
P	A	L	A	N	D	Ö	K	E	N
?	?	?	?	?	?	?	?	?	?

- A) 2323323433 B) 2323323433  
C) 3223323243 D) 2322323433  
E) 3232233343

## Özellik Feature

21 ve 22 soruları aşağıdaki bilgiye göre cevaplayınız.  
Answer questions 21 and 22 according to the following information.

$$\begin{aligned} 8K4L2 &= 10 \\ 5M8N3 &= 37 \\ 2K3M5 &= 17 \end{aligned}$$

Üstteki eşitlikte kullanılan K, L, M ve N harfleri dört işlem sembollerini temsil etmektedir. [(+), (-), (·), (÷)]  
K, L, M and N letters at above equalities represent mathematical operations [(+), (-), (·), (÷)]



$$= 4 \oplus (1 \oplus 3) = ?$$

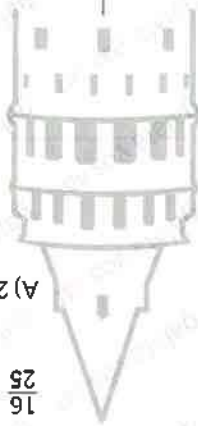
$$23. \quad x \oplus y = \begin{cases} x^2 + y & x > y \\ xy - 1 & x \leq y \end{cases}$$

- A) 3 B) 6 C) 9 D) 15 E) 18

- A) 3000 B) 10000 C) 10100 D) 10200 E) 10300

2	6	12	20	30	...	?
1	2	3	4	5	...	100

26.



- A) 25 B) 32 C) 56 D) 47 E) 58

- A) 15 B) 16 C) 17 D) 18 E) 19

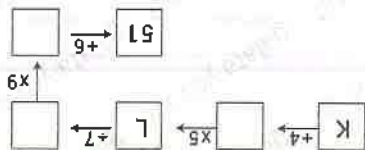
16	32	28	47	49
25	23	56	38	58

25. Seriyi bozan sayiyi bulunuz ? Find the number that disrupts the series.

22. A=7K3M5 B=21L3K4N8  
A-B=?

- A) 35 B) 36 C) 37 D) 38 E) 39

$$K+L=?$$



24.

$$21. \quad 8M4KX=45 \Rightarrow X=?$$

- A) 10 B) 11 C) 12 D) 13 E) 14

27.  326 → 236  
 418 → 40  
 526 → 256 → 42  
 627 → ?

- A) 26 B) 48 C) 56 D) 15 E) 84

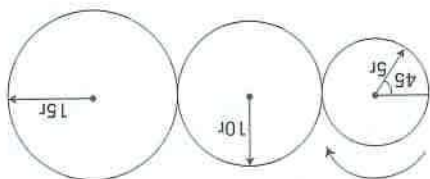
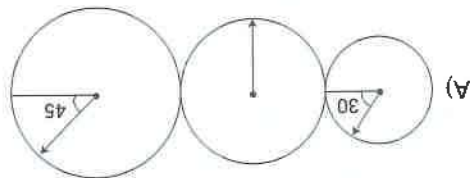
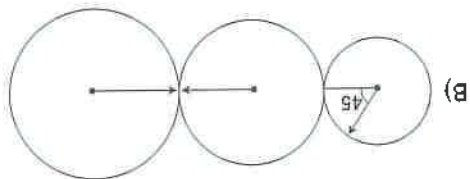
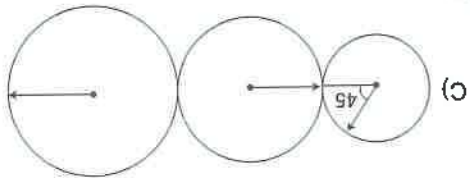
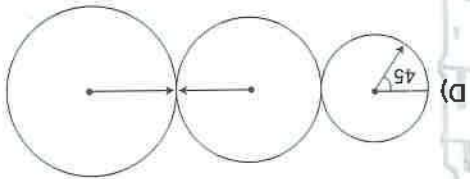
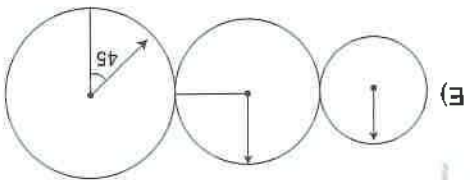
28.

AF  
 AF  
 AF  
 AF  
 AF  
 AF  
 AF  
 AF  
 AF  
 AF  
 JAA  
 +  
 JAA = AAJ = ?

- A) 552 B) 666 C) 555 D) 662 E) 660

29. SEFER → EFERS → FERSE → ?

- A) SEFER B) ERSEF  
 C) RSEEF D) ERFSE  
 E) ESREF



GARK / WHEEL

1. AB ve BA iki basamaklı doğal sayılardır.

AB ve BA are two-digit natural numbers.

$$AB = 2 \cdot BA + 7$$

olduğuna göre, A · B kaçtır ?

accordingly, what is A · B ?

- A) 11 B) 12 C) 16 D) 24 E) 32

2.  $(ab) + (ba) = 77$

$$\Rightarrow a + b = ?$$

3.  $(ab) + (ba) = 187$

$$(ab) - (ba) = 9$$

$$\Rightarrow \frac{b}{a} = ?$$

- A) 1 B) 2 C)  $\frac{1}{2}$  D)  $\frac{9}{8}$  E)  $\frac{8}{9}$

4. xx ve yy iki basamaklı doğal sayılardır. xx and yy are two-digit natural numbers.

$$(xx)^2 + (yy)^2 = 2057 \Rightarrow x + y = ?$$

- A) 3 B) 4 C) 5 D) 6 E) 7

5.

$$\begin{array}{r} \cdot \cdot \cdot \\ \cdot \cdot \cdot \\ \times \quad 38 \\ \hline \cdot \cdot \cdot \\ \cdot \cdot \cdot \\ + 717 \\ \hline \cdot \cdot \cdot \end{array}$$

Çarpma işleminin sonucu kaçtır ?

what is the result of the multiplication process?

- A) 8162 B) 9062 C) 8762 D) 8962 E) 9082

6.

$$A = 5m2n8$$

$$B = 4m7n9$$

olduğuna göre, A-B kaçtır ?

accordingly, what is A-B ?

- A) 10019 B) 10189 C) 10199 D) 9499 E) 9399

7.  $A = 5$   $B = (?)^5$

- A)  $(5)^5$  B)  $(40)^5$  C)  $(10)^5$  D)  $(11)^5$  E)  $(12)^5$

8.

$$(132)_4 = ?$$

- A)  $1 \cdot 4^2 + 3 \cdot 4 + 2 \cdot 4$   
 B)  $1 \cdot 4^2 + 3 \cdot 4^1 + 2 \cdot 4^0$   
 C)  $1 \cdot 4^3 + 3 \cdot 4^2 + 2 \cdot 4^1$   
 D)  $1 \cdot 4^3 + 3 \cdot 4^1 + 2 \cdot 4^0$   
 E)  $3 \cdot 4^2 + 1 \cdot 4^1 + 2 \cdot 4^0$



$$\begin{array}{r} (323)_5 \\ + (44)_5 \\ \hline ? \end{array}$$

9.

- A)  $(367)_5$   
 B)  $(322)_5$   
 C)  $(422)_5$   
 D)  $(312)_5$   
 E)  $(412)_5$

$$10. (34,2)_5 = (?)_{10}$$

- A) 16,4  
 B) 19,4  
 C) 34,2  
 D) 16,25  
 E) 19,50

$$11. (100101101)_2 = (x)_8 \Rightarrow x = ?$$

- A) 572  
 B) 455  
 C) 376  
 D) 354  
 E) 264

$$14. \begin{cases} 2^a = 9 \\ 3^b = 16 \end{cases} \Rightarrow a \cdot b = ?$$

- A) 6  
 B) 8  
 C) 9  
 D) 10  
 E) 11

15.

$$3^{x-2} = 1$$

$$5^{y+2} = 5$$

$$\Rightarrow x \cdot y = ?$$

- A) 12  
 B) 0  
 C) -1  
 D) -2  
 E) -3

12. 1 den 120 ye kadar doğal sayılar art arda yazılarak natural numbers from 1 to 120 are written consecutively, creating the number A.

$$A = 12345678910 \dots 119120$$

sayısı oluşturuluyor.

Buna göre, A kaç basamaklıdır ?

accordingly, how many digits is A?

- A) 251  
 B) 252  
 C) 253  
 D) 254  
 E) 255

1. Sıra \ Row	1	2	3	4	5
2. Sıra \ Row	6	7	8	9	10
3. Sıra \ Row	11	12	13	14	15
...					
11. Sıra \ Row	a	b	c	d	e

16.

$$\Rightarrow a+b+c+d+e=?$$

- A) 260 B) 265 C) 275 D) 285 E) 290

$$\Rightarrow a-b=?$$

$$b=1-\frac{6}{1}$$

$$17. a=\frac{2}{1}+\frac{3}{1}$$

A) 0

B) 1

C) 2

D)  $\frac{1}{6}$ E)  $\frac{6}{5}$ 

18.  $\sqrt{3}x+2=2x-\sqrt{3}$  eşitliğini sağlayan x değeri a+b $\sqrt{3}$  olduğuna göre a+b kaçtır?

what is a+b since a+b $\sqrt{3}$  which ensures  $\sqrt{3}+2=2x-\sqrt{3}$  equality?

A) 7

B) 10

C) 11

D) 12

E) 13

21.

a, b ardışık tam sayıdır.

a, b are consecutive integers.

$$a < \sqrt{159} < b \Rightarrow a+b=?$$

A) 23

B) 24

C) 25

D) 27

E) 29

20.

$$2^{10}-2^9-2^8-2^7-2^6-2^5-2^4-2^3-2^2-2^1-2^0=?$$

A) 1

B) 2

C) 3

D) 4

E) 5

19.

$$2^a=3, 3^b=4, \Rightarrow 7^{ab}=?$$

A) 49

B) 35

C) 28

D) 27

E) 21

22.  $\sqrt[3]{x} = \frac{2}{1} = \sqrt{\frac{x}{x+1}}$  = ?

- A) 3    B)  $\frac{5}{2}$     C) 2    D)  $\frac{2}{3}$     E) 1

25.  $x \in \mathbb{Z}$   
 $2 < |x+3| \leq 4 \Rightarrow \sum x = ?$

- A) -15    B) -13    C) -12    D) -7    E) -6

23.  $x = \sqrt[3]{5}$  ve  $y = \sqrt[3]{2}$   $\Rightarrow (x+y)(x^2-xy+y^2) = ?$

- A) 3    B) 4    C) 5    D) 6    E) 7

26.  $|3x-4| > 5 = S.S = ?$

- A)  $x < -3$  veya  $x > \frac{1}{3}$   
 B)  $x < -\frac{3}{1}$  veya  $x > 3$   
 C)  $-3 < x < \frac{1}{3}$   
 D)  $-\frac{1}{3} < x < 3$   
 E)  $x > -3$

24.  $|x|+2x = -2 \Rightarrow x^3 - x + 1 = ?$

- A) -11    B) -9    C) -5    D) 3    E) 7

27.  $-2 < x < 3$  ve  $-6 < x+y < 9 \Rightarrow y = ?$

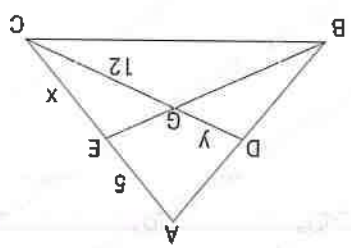
- A)  $-4 < y < 6$   
 B)  $-8 < y < 6$   
 C)  $-9 < y < 7$   
 D)  $-3 < y < 7$   
 E)  $-9 < y < 11$

28.  $\frac{1}{n} < \frac{24}{4} < \frac{1}{1}$

olduğuna göre, n tam sayıları kaç tane dir ?  
accordingly, how many are n integers ?

- A) 1 B) 2 C) 3 D) 4 E) 5

1. G: ağırlık merkezi  
G: center of gravity



$|AG| = 5$   
 $|GD| = 12$   
 $|GE| = x$   
 $|GF| = y$   
 $|GC| = 12$

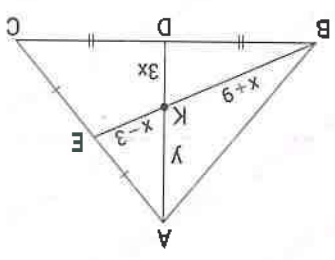
- A) 1 B) 2 C) 3 D) 4 E) 5

29.  $|x-y| = 3 = \min(3x-3y+|2y-2x|) = ?$

- A) -12 B) -9 C) -6 D) -3 E) 3

2. ABC bir üçgen  
ABC triangle

$|AE| = |EC|$   
 $|BD| = |DC|$   
 $|AK| = y$   
 $|KD| = 3x$   
 $\frac{x}{y} = ?$

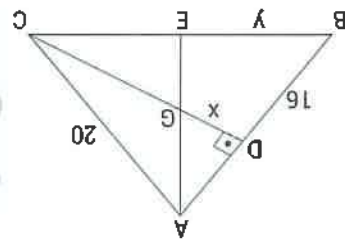


- A) 2 B) 3 C) 4 D) 5 E) 6

$|x-6| + |9-x| = 5$   
 $\Rightarrow \sum x = ?$

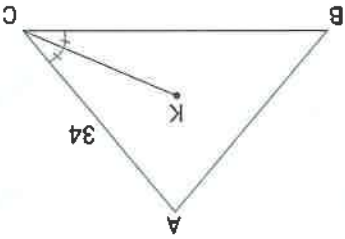
- A) 13 B) 14 C) 15 D) 16 E) 17

4. G: ağırlık merkezi!  
 [CD] ⊥ [AB]  
 |BD| = 16  
 |AC| = 20  
 |DG| = x  
 |BE| = y  
 x + y = ?



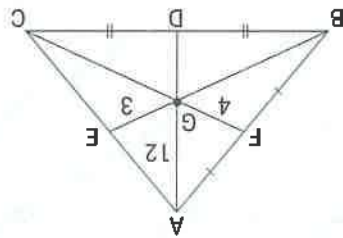
- A) 12 B) 13 C) 14 D) 15 E) 16

5. G: ağırlık merkezi!  
 $m(\widehat{ACK}) = m(\widehat{KCB})$   
 K: ağırlık merkezi  
 center of gravity  
 |AC| = 34  
 |AB| = 32  
 |KC| = ?



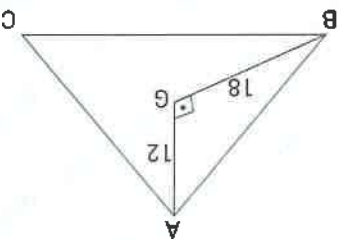
- A) 12 B) 14 C) 16 D) 18 E) 20

3. ABC bir üçgen  
 |BD| = |DC|  
 |AF| = |FB|  
 |GE| = 3  
 |FG| = 4  
 |AG| = 12  
 $V_a + V_b + V_c = ?$



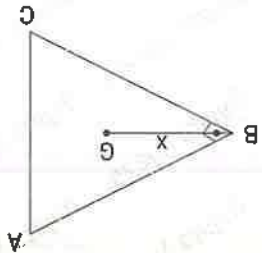
- A) 28 B) 29 C) 30 D) 34 E) 39

5. G: ağırlık merkezi!  
 center of gravity  
 [AG] ⊥ [BG]  
 |AG| = 12  
 |BG| = 18  
 |AC| = ?



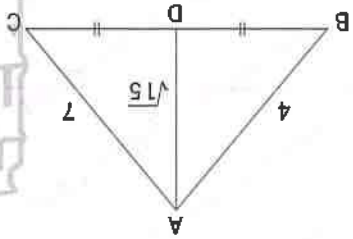
- A) 24 B) 25 C) 27 D) 30 E) 32

7. G: ağırlık merkezi  
 $[AB] \perp [BC]$   
 $|AC| = 24$   
 $|BG| = x = ?$



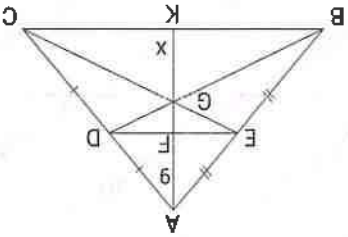
- A) 7 B) 8 C) 9 D) 10 E) 11

8.  $|BD| = |DC|$   
 $|AD| = \sqrt{15}$   
 $|AB| = 4$   
 $|AC| = 7$   
 $|BC| = ?$



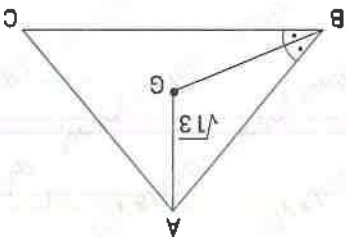
- A)  $\sqrt{35}$  B)  $\sqrt{39}$  C)  $\sqrt{65}$  D)  $\sqrt{70}$  E)  $\sqrt{71}$

10. ABC bir üçgen  
 $|AD| = |DC|$   
 $|AE| = |EB|$   
 $|AF| = 9$   
 $|GK| = ?$



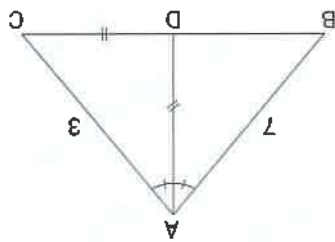
- A) 5 B) 6 C) 7 D) 8 E) 9

9.  $m(\widehat{ABG}) = m(\widehat{GBC})$   
 $|AG| = \sqrt{13}$   
 $|AC| = 6$   
 G: ağırlık merkezi  
 center of gravity  
 $|BC| = ?$

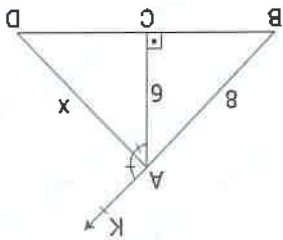


- A)  $2\sqrt{5}$  B)  $3\sqrt{5}$  C)  $4\sqrt{5}$  D)  $5\sqrt{5}$  E)  $6\sqrt{5}$

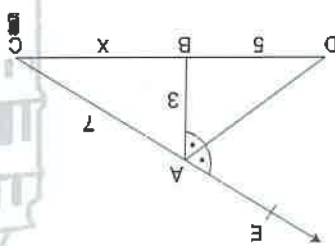
11. ABC bir üçgen  
ABC triangle  
 $m(\widehat{BAD}) = m(\widehat{DAC})$   
 $|AD| = |DC|$   
 $|AC| = 3$   
 $|AB| = 7$   
 $|DC| = ?$



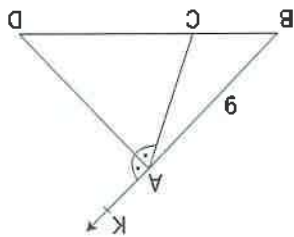
- A)  $2\sqrt{7}$   
B)  $3\sqrt{5}$   
C)  $3\sqrt{6}$   
D)  $3\sqrt{7}$   
E)  $3\sqrt{8}$
13.  $m(\widehat{CAD}) = m(\widehat{DAK})$   
[AC] ⊥ [BD]  
 $|AC| = 6$   
 $|AB| = 8$   
 $|AD| = x = ?$
- A)  $8\sqrt{2}$   
B)  $9\sqrt{2}$   
C)  $10\sqrt{2}$   
D)  $11\sqrt{2}$   
E)  $12\sqrt{2}$



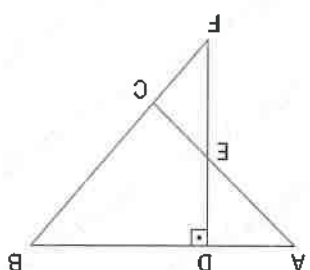
12. ADC bir üçgen  
ABC triangle  
 $m(\widehat{EAD}) = m(\widehat{DAB})$   
 $|AB| = 3$   
 $|DB| = 5$   
 $|AC| = 7$   
 $x = ?$



- A) 4  
B) 5  
C) 6  
D)  $\frac{3}{20}$   
E) 7
14. ABC bir üçgen  
ABC triangle  
 $m(\widehat{CAD}) = m(\widehat{DAK})$   
 $|CD| = 2|BC|$   
 $|AB| = 9$   
 $|AC| = ?$
- A) 5  
B) 6  
C) 7  
D) 8  
E) 9

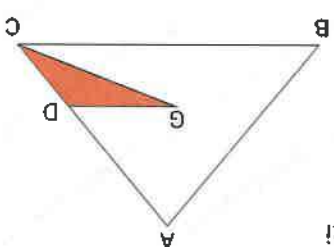


- A) 4 B) 5 C) 6 D) 7 E) 8



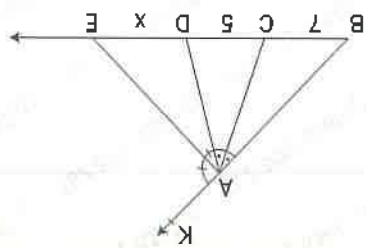
17. [DF] ⊥ [AB]  
|AC| = |BC|  
|AE| = 5  
|BE| = 15  
|CF| = x = ?

- A) 1 B) 2 C) 3 D) 4 E) 5



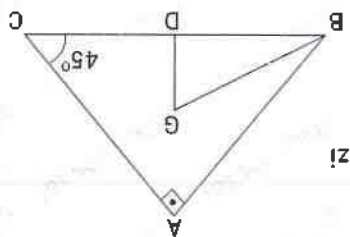
16. G: ağırlık merkezi  
center of gravity  
|AD| = 3|DC|  
m(ABC) = 48  
m(GDC) = ?

- A) 12 B) 15 C) 20 D) 25 E) 30



15. m(BAC) = m(CAD)  
m(DAE) = m(EAK)  
|CD| = 5  
|BC| = 7  
x = ?

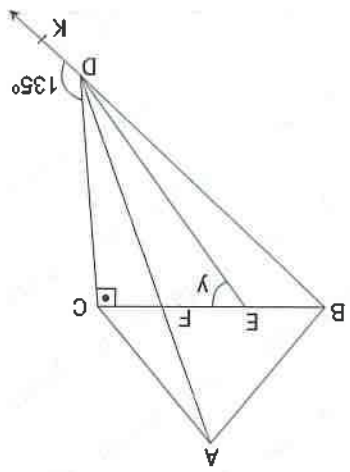
18. [AB] ⊥ [AC]



18. [AB] ⊥ [AC]  
m(ACB) = 45°  
G: ağırlık merkezi  
center of gravity  
|BD| = |DC|  
|GD| = 3√2  
|BG| = ?

- A) 3√2 B) 6√2 C) 6√3 D) 6√5 E) 9√5

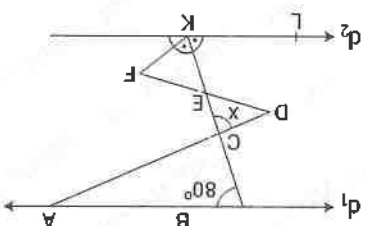
19. [BC] ⊥ [CD]



19. [BC] ⊥ [CD]  
|AB| = |AC| = |BC|  
m(CDK) = 135°  
m(EDA) = 5 m(BDE)  
y = ?

- A) 45 B) 50 C) 55 D) 58 E) 60

20. d<sub>1</sub> // d<sub>2</sub>



20. d<sub>1</sub> // d<sub>2</sub>  
[AD] // [KF]  
m(FKE) = m(EKL)  
m(ABK) = 80°  
m(DCE) = x = ?

- A) 50 B) 60 C) 70 D) 80 E) 100



# Başarıya Götüren



Mat	Problem 1 Problem	Mat	Order - Order	Mat	Order - Order
Geo	Problem 2 Problem	Geo	Order - Order	Geo	Order - Order
Mat	Problem 3 Problem	Mat	Order - Order	Mat	Order - Order

Mat	Problem 4 Problem	Mat	Order - Order	Mat	Order - Order
Geo	Problem 5 Problem	Geo	Order - Order	Geo	Order - Order
Mat	Problem 6 Problem	Mat	Order - Order	Mat	Order - Order

Mat	Problem 7 Problem	Mat	Order - Order	Mat	Order - Order
Geo	Problem 8 Problem	Geo	Order - Order	Geo	Order - Order
Mat	Problem 9 Problem	Mat	Order - Order	Mat	Order - Order

Mat	Problem 10 Problem	Mat	Order - Order	Mat	Order - Order
Geo	Problem 11 Problem	Geo	Order - Order	Geo	Order - Order
Mat	Problem 12 Problem	Mat	Order - Order	Mat	Order - Order

Mat	Problem 13 Problem	Mat	Order - Order	Mat	Order - Order
Geo	Problem 14 Problem	Geo	Order - Order	Geo	Order - Order
Mat	Problem 15 Problem	Mat	Order - Order	Mat	Order - Order

Mat	Problem 16 Problem	Mat	Order - Order	Mat	Order - Order
Geo	Problem 17 Problem	Geo	Order - Order	Geo	Order - Order
Mat	Problem 18 Problem	Mat	Order - Order	Mat	Order - Order

Mat	Problem 19 Problem	Mat	Order - Order	Mat	Order - Order
Geo	Problem 20 Problem	Geo	Order - Order	Geo	Order - Order
Mat	Problem 21 Problem	Mat	Order - Order	Mat	Order - Order

Mat	Problem 22 Problem	Mat	Order - Order	Mat	Order - Order
Geo	Problem 23 Problem	Geo	Order - Order	Geo	Order - Order
Mat	Problem 24 Problem	Mat	Order - Order	Mat	Order - Order

Mat	Problem 25 Problem	Mat	Order - Order	Mat	Order - Order
Geo	Problem 26 Problem	Geo	Order - Order	Geo	Order - Order
Mat	Problem 27 Problem	Mat	Order - Order	Mat	Order - Order

Mat	Order of Operations and Rational Numbers	Mat	Order of Operations and Rational Numbers	Mat	Order of Operations and Rational Numbers
Geo	Angles / Angles	Geo	Angles / Angles	Geo	Angles / Angles
Mat	Order of Operations and Rational Numbers	Mat	Order of Operations and Rational Numbers	Mat	Order of Operations and Rational Numbers

## KTS-8

Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers	Mat	Sayılar / Numbers
Geo	Sayı Bağıntıları/Number Relations	Geo	Sayı Bağıntıları/Number Relations	Geo	Sayı Bağıntıları/Number Relations
Mat	Kemali Sayılar / Radical Expressions	Mat	Kemali Sayılar / Radical Expressions	Mat	Kemali Sayılar / Radical Expressions

Mat	İşlem Öncesi ve Rasyonel Sayılar	Mat	İşlem Öncesi ve Rasyonel Sayılar	Mat	İşlem Öncesi ve Rasyonel Sayılar
Geo	Şifreler / Passwords	Geo	Şifreler / Passwords	Geo <td Şifreler / Passwords	
Mat	İşlem Öncesi ve Rasyonel Sayılar	Mat	İşlem Öncesi ve Rasyonel Sayılar	Mat	İşlem Öncesi ve Rasyonel Sayılar

1.

+	b	
q		7
b		12

$$b - 3q = ?$$

- A) 1    B) 2    C) 3    D) 4    E) 5

2.

x	a	b	c
a			24
b	20		
c		30	

$$a > 0 \quad b > 0 \quad c > 0$$

$$a \cdot b \cdot c = ?$$

- A) 120    B) 130    C) 140    D) 150    E) 160

3.

+	p	q	r
p			
q	12-r		10
r			2p-4

$$2p + q \cdot r = ?$$

- A) 28    B) 30    C) 32    D) 36    E) 40

6.

+	k	m
k		
m	13	

$$(k-m)^2 = ?$$

x	k	m
k		
m	40	

- A) 1    B) 4    C) 9    D) 16    E) 25

5.

x	k	l	m
k			25l
l	m		
m	36k		

$$k, l, m > 0$$

$$k + l + m = ?$$

- A) 39    B) 40    C) 41    D) 42    E) 43

4.

x	a	b	c
a			
b	9c		
c	16a		

$$b = ?$$

- A) 10    B) 12    C) 14    D) 16    E) 18

7.

$$2x = ?$$

+	$2^x$	$2^y$	
	$2^x$	$2^y$	
	$2^x$		64
	$2^y$		$2^y$

x	$2^x$	$2^y$	
	$2^x$		

- A) 1 B) 2 C) 3 D) 4 E) 5

8.

$$(b-a)^2 = ?$$

+	$3^a$	$3^b$	
	$3^a$		
		$6 \cdot 3^a$	
	$3^b$		

x	$3^a$	$3^b$	
	$3^a$		243
		$3^b$	

- A) 1 B) 4 C) 9 D) 16 E) 25

10.

$$b = ?$$

+	a	b	c
	a	b	15
	b		24

x	a	b	c
	a		136

- A) 3 B) 5 C) 6 D) 7 E) 8

11.

$$(b \cdot d) + (b \cdot c) = ?$$

+	c	d	
	b		15
	b	15	

x	c	d	
	b		42
	b		72

- A) 63 B) 76 C) 85 D) 96 E) 110

9.

$$\frac{K+M}{L} = ?$$

+	A	B	
	A		7A
	A	K	
	B		L

x	A	B	C
	A		
	B		
	C		M

- A)  $\frac{64}{37}$  B)  $\frac{36}{65}$  C)  $\frac{64}{35}$  D) 4 E) 6

12.

$$K^2 - L^3 = ?$$

-	K	L	
	K		5
	L		

x	K	L	
	K		5
	L		

- A) 120 B) 140 C) 160 D) 180 E) 200

13.

+	K	L	M
K		10	
L			
M	12		

x	K	L	3
K		63	
L			
M	21		

$$K+L=?$$

- A) 15 B) 16 C) 17 D) 18 E) 19

14.

+	X	Y	Z
X			
Y	13		
Z	18		

$$Y=?$$

- A) 7 B) 8 C) 9 D) 10 E) 11

15.

+	a	b	c
a		7	
b			3a

$$b+c=?$$

x	a	b	c
a			36

- A) 8 B) 9 C) 10 D) 11 E) 12

18.

9	209	5
3		2

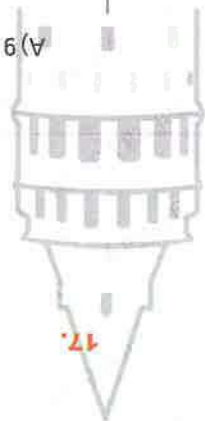
8	242	6
1		7

4	154	4
6		0

4	?	5
2		2

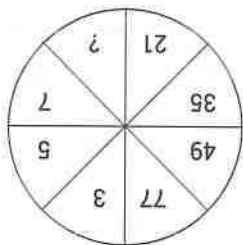
- A) 143 B) 144 C) 145 D) 146 E) 147

17.



A) 9

- B) 11 C) 13 D) 15 E) 17



- A) 70 B) 56 C) 84 D) 126 E) 252

Buna göre 9. satırdaki en büyük çift sayı kaçtır?  
According to this rule, what is the biggest even  
number in the 9th row?

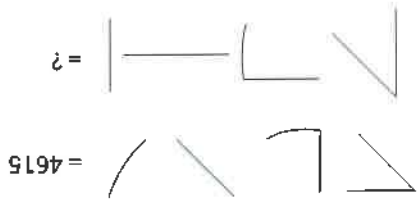
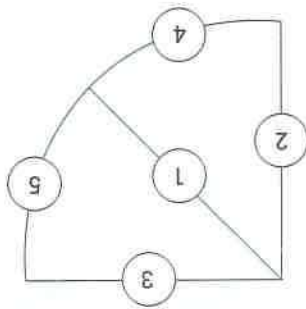
1  
1 2 1  
1 3 3 1  
1 4 6 4 1  
1 5 10 10 5 1

a specific rule

The numbers given below are ordered with regard to  
Aşağıdaki sayılar belirli bir kurala göre dizilmiştir.

16.

19.



= ?

A) 3832 B) 5563 C) 4789 D) 3721 E) 6685

$$20. x * y = \begin{cases} x \cdot y - x & x < y \\ x \cdot y - y & y \leq x \end{cases} \quad (3 * 4) * 5 = ?$$

A) 44 B) 43 C) 42 D) 41 E) 40

A) 3227 B) 2813 C) 1212 D) 1217 E) 903

21. 33 24 = 118

45 21 = 157

93 18 = 316

84 39 = ?

A)

6	5	4
9	12	8
10	7	11

B)

6	7	4
5	12	8
4	5	11

C)

1	2	3
4	5	7
9	11	13

D)

3	2	1
6	9	5
7	4	8

E)

9	8	7
12	15	11
13	10	14

22.

Yukarıda yapılan işlem

4	6	8
5	7	9
10	11	12

12	5	10
6	7	11
8	9	4

9	2	7
3	4	8
5	6	1

Kutusuna uygulandığında II. işlemden sonra elde edilen kutu aşağıdaki kilerden hangisidir ?

Consider the above two operations. If these operations are applied to the following box what is the box after the operation II.

23.  $(8 \times 4) \div 7 = 14$   
 $(9 \div 2) \times 3 = 8$   
 $(21 \div 9) \times 6 = 2$   
 $(8 \div 4) \div 3 = ?$

- A) 40 B) 37 C) 35 D) 27 E) 21

25.  $(q \div r) \div (p \div w) = ?$

- A) p B) q C) r D) w E) x

24. 19 20 22 25 x 34 y 47 55  
 $= x + y = ?$

- A) 63 B) 66 C) 69 D) 72 E) 75

26.  $(k \div q) \div q = x = k = ?$

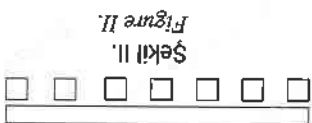
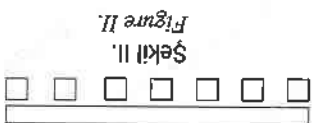
- A) p B) q C) r D) w E) x

## Özellik

## Feature


25 - 26. soruları yukarıdaki tabloya göre cevaplayınız?  
 Answer the questions 25 - 26 according to the table below ?

Bir işçi dikdörtgen şeklindeki bir levhayı şekil I, deki gibi 5 eşit parçaya 20 dakikada bölmektedir. Bu işçi aynı levhayı şekil II, deki gibi 7 eşit parçaya kaç dakika-  
 da böler ?  
 A worker cuts a rectangle plate into 5 equal pieces as in figure I with a saw in 20 minutes how many minutes does it take for the same worker to cut the same plate into 7 equal pieces as in figure II ?



- A) 23 B) 25 C) 28 D) 30 E) 35

27.



1. a bir tam sayı ve  $a^5 + 2a$  tek sayı ise, aşağıdakilerden hangisi çifttir ?

If  $a$  is an integer and  $a^5 + 2a$  is an odd number, which of the following is even ?

- A)  $a(a+3)$  B)  $a(a+2)$  C)  $4-a$   
 D)  $a^3+a^2-1$  E)  $a^2+a+1$

2. 1 ile 50 sayıları arasında kaç tane asal sayı vardır ?

how many prime numbers are there between the numbers 1 and 50?

- A) 11 B) 12 C) 13 D) 14 E) 15

3.  $1+2+3+\dots+20=?$

- A) 190 B) 195 C) 200 D) 210 E) 220

30. Başlangıç sayısı  $X=9$ , kat sayısı  $K=5$  olan sayı dizisinin  $n$  teriminin son (beşinci) terimi en çok kaç olabilir ?  
 Starting with  $X=9$  and  $K=5$  one performs two additions an two multiplications. What is the largest possible value of last (fifth) term of the sequence ?

- A) 400 B) 425 C) 450 D) 475 E) 500

28. Yukarıdaki sayı dizisine göre  $A$  kaçtır ?

According to the number sequence, what is the value of  $A$  ?

- A) 5 B) 6 C) 7 D) 8 E) 9

29.  $A \frac{+K}{-K} \leftarrow 16 \frac{xK}{-K} \leftarrow B \frac{-K}{-K} \leftarrow 105$

- A) 17 B) 13 C) 12 D) 11 E) 10

28.  $\begin{array}{c} 4 \\ \uparrow \\ 61 \\ \uparrow \\ 82 \end{array}$   $\begin{array}{c} 7 \\ \uparrow \\ 12 \\ \uparrow \\ 84 \end{array}$   $\begin{array}{c} ? \\ \uparrow \\ 86 \end{array}$

6.  $\frac{7i-6i}{3+4i} = ?$

- A) 15    B) 20    C) 30    D) 42    E) 60

9.  $A, x, y, z \in \mathbb{Z}^+$   
 $A = 4 \cdot x + 2 = 9y - 2 = 24 \cdot z + 22$   
 $\Rightarrow \min(A) = ?$

- A) 66    B) 70    C) 74    D) 78    E) 82



5.  $\frac{1}{3} + \frac{2}{3} + 1 + \frac{4}{3} + \frac{5}{3} + 2 + \dots + 20 = ?$

- A) 610    B) 605    C) 600    D) 590    E) 580

8.  $81 = 2^a \cdot 3^b \cdot 7^c \cdot k = a + b + c = ?$

- A) 11    B) 10    C) 9    D) 8    E) 7

4.  $1 - 2 + 3 - 4 + \dots + 59 - 60$

- A) -30    B) -29    C) -28    D) -27    E) -26

7. 101-1 sayısının sondan kaç basamağı 9 dur ?  
 How many digits from the last digits of 101-1  
 number are 9?

- A) 20    B) 10    C) 22    D) 23    E) 24



10.  $a, b \in \mathbb{Z}^+$   
 $18 \cdot a = b^2 = \min(b) = ?$

- A) 5 B) 6 C) 7 D) 8 E) 9

13.  $a$  ve  $b$  pozitif tam sayılar olmak üzere  $\frac{a}{b} = \frac{5}{5}$  ve  $\text{OBEB}(a, b) = 10$  olduğuna göre,  $\text{OKEK}(a, b) = ?$   
 $a$  ve  $b$  are positive integers  $\frac{a}{b} = \frac{5}{5}$  and  $\text{GCD}(a, b) = 10$  what is  $\text{LCM}(a, b)$

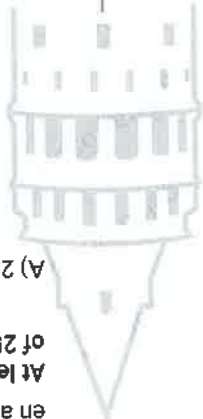
- A) 30 B) 60 C) 100 D) 150 E) 300

11.  $x, y \in \mathbb{N}^+$   
 $18x + 19y = 2^7 \cdot x = \max(y) = ?$

- A) 14 B) 16 C) 18 D) 20 E) 22

14. Kenar uzunlukları 25 ve 40 cm olan dikdörtgenlerin en az kaç tanesi bir kare oluşturur?  
 At least how many of the rectangles with edge lengths of 25 and 40 cm make up a square?

- A) 20 B) 25 C) 30 D) 35 E) 40



15. Boyutları 132, 198, 330 birim olan dikdörtgenler prizması şeklindeki kutu eşit hacimli küplerle doldurula-  
 caktır.  
 Buna göre, bu kutu en az kaç tane küp ile doldurulur?

The box in the form of rectangular prisms, whose dimensions are 132, 198, 330 units, shall be filled with cubes of equal volume.  
 Accordingly, how many cubes are filled in this box?

- A) 34 B) 30 C) 26 D) 22 E) 18

12.  $x \in \mathbb{Z}$   
 $\frac{120}{x} \in \mathbb{Z}$ ,  $\frac{132}{x} \in \mathbb{Z} \Rightarrow \max(x) = ?$

- A) 6 B) 12 C) 18 D) 24 E) 30

$$16. 2009 \frac{1}{14} - 2006 \frac{1}{13} = ?$$

$$1999 \frac{1}{12} - 1996 \frac{1}{12}$$

- A)  $\frac{5}{3}$   
 B)  $\frac{5}{7}$   
 C)  $\frac{5}{8}$   
 D)  $\frac{5}{13}$   
 E)  $\frac{5}{13}$

19.  $-2 < x < 7$  olduğuna göre,  
 Since it's  $-2 < x < 7$   
 $x^2 + 2x - 7$  ifadesinin en büyük tam sayı değeri kaçtır?  
 what is the maximum integer value of the expression?

- A) 55  
 B) 53  
 C) 27  
 D) 21  
 E) 17

$$17. x + 4 + 4 - x = \frac{3}{4} - 3 - x = \frac{3}{4} \Rightarrow x = ?$$

- A) 12  
 B) 9  
 C) -4  
 D) -6  
 E) -12

$$20. x < y < 0 < z \text{ olmak üzere}$$

$$\left| \frac{1}{1} - \frac{1}{1} \right| + \left| \frac{1}{1} - \frac{1}{1} \right| + \left| \frac{1}{1} - \frac{1}{1} \right| = ?$$

- A)  $\frac{1}{1} - \frac{1}{1}$   
 B)  $\frac{1}{1} - \frac{1}{1}$   
 C)  $\frac{1}{1} + \frac{1}{1}$   
 D)  $\frac{1}{1} + \frac{1}{1} - \frac{1}{1}$   
 E)  $2 \left( \frac{1}{1} - \frac{1}{1} \right)$

$$18. (x + 2y - 10)^4 + (2x - y - 5)^6 + 3m + n - 19 + \sqrt[8]{m - n - 1} = 0$$

$$\Rightarrow n + y = ?$$

- A) -3  
 B) -4  
 C) 5  
 D) 7  
 E) 10

$$21. |x - 2| + |6 - 3x| - |4 - 2x| = 8 \text{ ise } |x| = ?$$

- A) -4  
 B) -12  
 C) 7  
 D) 9  
 E) 13

22. Aşağıdakilerden hangisi yanlıştır? which of the following is false?

- A)  $(2^{-2})^{-1} = 4$   
 B)  $\left(\frac{5}{3}\right)^{-1} = \frac{3}{5}$   
 C)  $(-2^2)^{-1} = \frac{4}{1}$   
 D)  $(-3^{-2})^{-1} = -9$   
 E)  $(-3^3)^{-5} = (-3^{-5})^3$

- A)  $y > x > z$   
 B)  $x > z > y$   
 C)  $x > y > z$   
 D)  $z > y > x$   
 E)  $z > x > y$

25.  $x = \sqrt{3} + \sqrt{5}$   
 $y = \sqrt{12} + \sqrt{6}$   
 $z = \sqrt{10} + 8$   
 olduğuna göre aşağıdaki sıralamalardan hangisi doğrudur? Accordingly, which of the following rankings is true?

23.  $5 - 5^x + 3^x \cdot 5^{x+1} = \frac{75}{15-x} = x = ?$

- A) 1  
 B) 2  
 C) 3  
 D) 4  
 E) 5

26.  $\frac{x^4 + x \cdot x^{-1}}{x^2 - 1} \cdot \frac{x^2 - x + 1}{x^{-1}} = ?$

- A)  $x$   
 B)  $\frac{x-1}{1}$   
 C)  $x+1$   
 D)  $\frac{x-1}{x+1}$   
 E)  $\frac{1}{x+1}$

24.  $\sqrt{\sqrt{78 + \sqrt{\sqrt{10 - 1}} \cdot \sqrt{11 + 2\sqrt{10}}}} = ?$

- A) 3  
 B) 5  
 C) 7  
 D) 9  
 E) 11

27.  $\frac{ABC}{D} + \frac{CBA}{D} = (B+D) - (A+C) = ?$

- A) 0  
 B) 1  
 C) 2  
 D) 3  
 E) 4

30.  $(213)^x + (x2)^6 = ?$

- A) 63
- B) 62
- C) 61
- D) 60
- E) 59

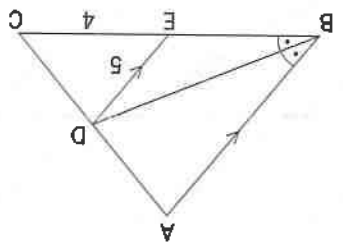
29.  $(45)^7 + \frac{(32)^7}{(a)^7} = a = ?$

- A) 2033
- B) 1233
- C) 2133
- D) 112
- E) 110

28.  $7 \cdot 9^3 + 5 \cdot 3^5 + 2 \cdot 9 + 8 = (a)^9 \Rightarrow a = ?$

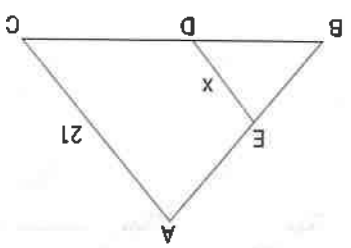
- A) 220022
- B) 12200122
- C) 2202200
- D) 22200222
- E) 10220101

- A)  $\frac{4}{45}$
- B)  $\frac{45}{2}$
- C) 45
- D) 35
- E) 30



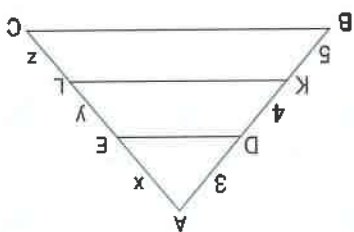
2.  $[AB] \parallel [DE]$   
 $m(\widehat{ABD}) = m(\widehat{DBE})$   
 $|EC| = 4$   
 $|DE| = 5$   
 $|AB| = ?$

1. ABC bir üçgen  
 $[DE] \parallel [AC]$   
 $|AE| = 2|EB|$   
 $|AC| = 21$   
 $|DE| = x = ?$



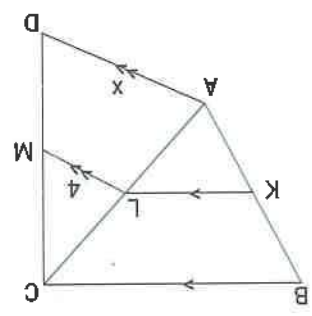
- A) 4
- B) 5
- C) 6
- D) 7
- E) 8

3. ABC bir üçgen  
 ABD triangle  
 $[DE] // [KL] // [BC]$   
 $|AD| = 3$   
 $|KD| = 4$   
 $|BK| = 5$   
 $\frac{x+z}{y} = ?$



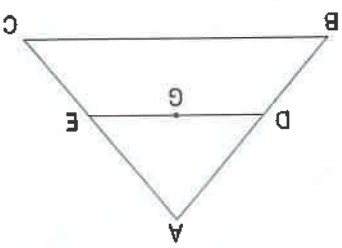
- A) 1 B) 2 C) 3 D) 4 E) 5

4. ABC bir üçgen  
 ABD triangle  
 $[KL] // [BC]$   
 $[LM] // [AD]$   
 $|BK| = 2|AK|$   
 $x = ?$



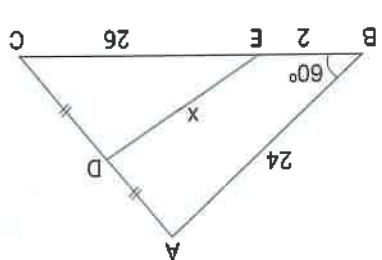
- A) 3 B) 4 C) 5 D) 6 E) 8

5. ABC bir üçgen  
 ABD triangle  
 $[DE] // [BC]$   
 G: ağırlık merkezi  
 center of gravity  
 $|BC| = 9$   
 $|DE| = ?$



- A) 6 B) 7 C) 8 D) 9 E) 10

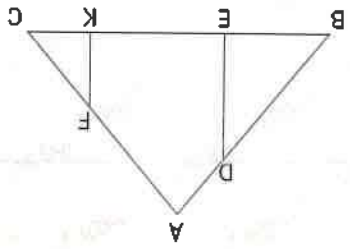
6. ABC bir üçgen  
 $m(\widehat{ABC}) = 60^\circ$   
 $|BE| = 2$   
 $|AB| = 24$   
 $|EC| = 26$   
 $|DE| = x = ?$



- A)  $10\sqrt{3}$  B)  $11\sqrt{3}$  C)  $12\sqrt{3}$   
 D)  $14\sqrt{5}$  E)  $15\sqrt{3}$

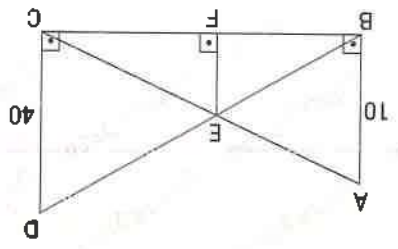
KTS 8

7. ABC bir üçgen  
 $[DE] \parallel [FK]$   
 $|BD| = 4|AD|$   
 $2|AF| = 3|FC|$   
 $\frac{|DE|}{|FK|} = ?$



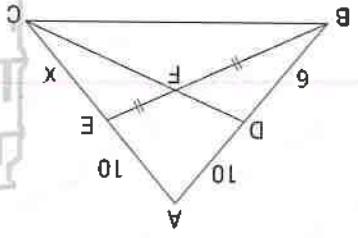
- A)  $\frac{1}{2}$  B) 1 C) 2 D) 3 E) 4

9.  $[EF] \perp [BC]$   
 $|AB| = 10$   
 $|CD| = 40$   
 $|BC| = 50$   
 $|EF| = ?$



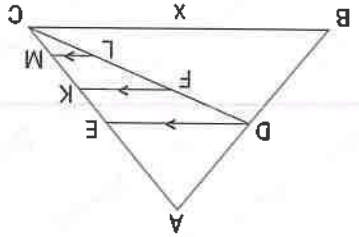
- A) 8 B) 9 C) 10 D) 12 E) 14

8. ABC bir üçgen  
 $|BF| = |FE|$   
 $|AD| = |AE| = 10$   
 $|BD| = 6$   
 $|EC| = x = ?$



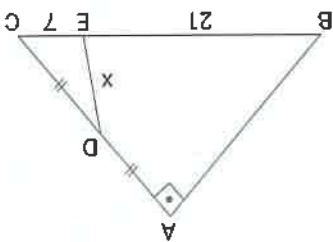
- A) 6 B) 10 C) 12 D) 15 E) 16

10. ABC bir üçgen  
 $[DE] \parallel [FK] \parallel [LM]$   
 $|AE| = |MC| = 3|KM|$   
 $|EK| = 2|KM|$   
 $|FK| = 8$   
 $|BC| = x = ?$



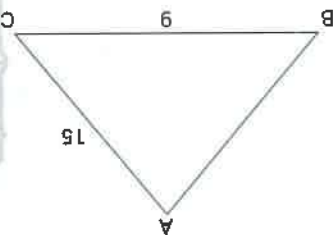
- A) 30 B) 32 C) 34 D) 36 E) 38

11. ABC bir üçgen ABD üçgeni  $[AB] \perp [AC]$   $|AD| = |DC|$   $|EC| = 7$   $|BE| = 21$   $|DB| = x = ?$



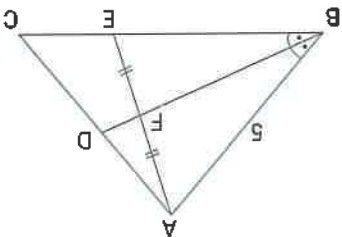
- A) 7 B) 8 C) 9 D) 10 E) 12

12.  $m(\widehat{BCA}) = 2 m(\widehat{BAC})$   $|BC| = 9$   $|AC| = 15$   $|AB| = ?$



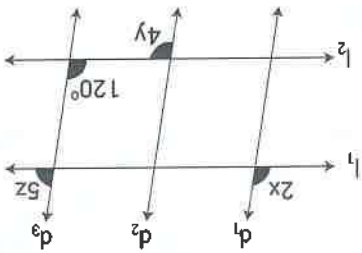
- A)  $2\sqrt{6}$  B)  $3\sqrt{6}$  C)  $4\sqrt{6}$  D)  $5\sqrt{6}$  E)  $6\sqrt{6}$

14.  $|AF| = |FE|$   $m(\widehat{ABD}) = m(\widehat{DBC})$   $|DC| = 2|AD|$   $|BE| = ?$   $|EC| = ?$



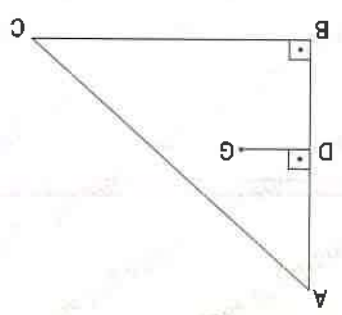
- A) 7 B) 6 C) 5 D) 3 E) 1

13.  $d_1 // d_2 // d_3$   $l_1 // l_2$   $x + y - z = ?$

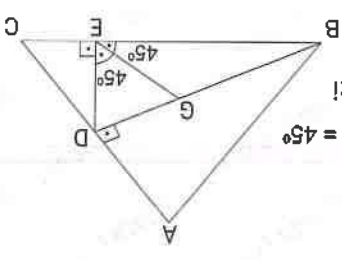


- A) 75 B) 76 C) 78 D) 80 E) 90

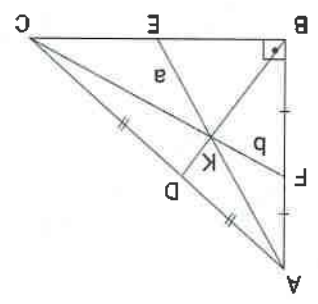
15. [AB] ⊥ [BC]  
[AB] ⊥ [GD]  
G: ağırlık merkezi  
|DG| = 5  
|BC| = ?  
A) 5 B) 10 C) 15 D) 20 E) 25



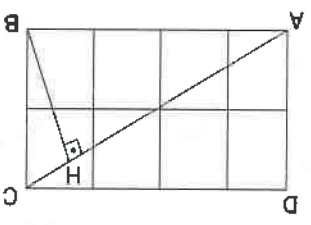
18. [BD] ⊥ [AC]  
[DE] ⊥ [BC]  
m(∠DEG) = m(∠GEB) = 45°  
G: ağırlık merkezi  
center of gravity  
|DE| = 8  
|AB| = ?  
A) 8 B) 9 C) 10 D) 20 E) 24



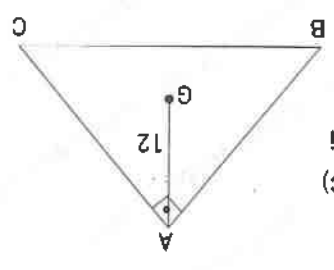
16. [AB] ⊥ [BC]  
|AD| = |DC|  
|KE| = a  
|FK| = b  
|BD| = 3√3  
a² + b² = ?  
A) 12 B) 13 C) 14 D) 15 E) 16



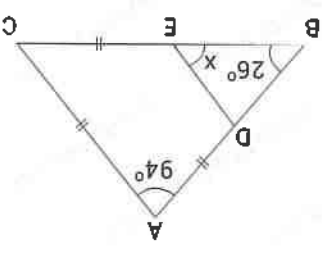
19. ABCD dikdörtgenin-  
de birim karelere  
ayrılmıştır.  
The ABCD rectangle  
is divided into unit  
squares.  
|BH| = ?  
A) 2/√5 B) 3/√5 C) 4/√5 D) 5/√5 E) 6/√5



17. [BA] ⊥ [AC]  
2 m(∠GAC) = m(∠ABC)  
G: ağırlık merkezi  
center of gravity  
|AG| = 12  
|AB| = ?  
A) 12 B) 13 C) 14 D) 16 E) 18



20. |AD| = |AC| = |EC|  
m(∠BAC) = 94°  
m(∠ABC) = 26°  
m(∠DEB) = x = ?  
A) 42 B) 44 C) 46 D) 47 E) 49







10

+	K	L	9
K		16	
L		4K	
M	12		

x	K	L
K		
L	55	
M		

1. A)  $\frac{5}{13}$  B)  $\frac{5}{18}$  C)  $\frac{7}{13}$  D)  $\frac{7}{15}$  E) 3
- $L+M=?$

2. A) 1 B) 2 C) 3 D) 4 E) 5

x	p	q	r
p		$\frac{7}{2r}$	
q	$\frac{7}{2r}$		14p

$p-r < 0$   
 $q-r < 0$   
 $p+q+r=?$

3. A)  $\times \times \times$  B)  $\nearrow \times \times \times$  C)  $\leftarrow \leftarrow \leftarrow$  D)  $\nearrow \nearrow$  E)  $\leftarrow \leftarrow$

$\leftarrow$	$\times \times \times$		
$\times$	$\leftarrow \leftarrow$		
$\times$			
+	$\times \times$	$\nearrow$	$\leftarrow$

5.

- A) B) C) D) E)

	●	■
■ ■ ■		▼
● ●	▼ ▼	+

$\bullet + \blacksquare = ?$

III.

		3		
5				
	7		9	

II.

		4		
	7			
			11	

I.

				z
y		x		
				t

$(1 \cdot 3) \cdot x + (1 \cdot 5) \cdot y + (2 \cdot 1) \cdot z + (3 \cdot 5) \cdot t = 3x + 5y + 15t + 2z$

134

?

- A) 109 B) 117 C) 123 D) 127 E) 131

7.

3	L	3
2	$\frac{8}{6}$	$\frac{10}{7}$
★	4	5

6	$\frac{13}{1}$	$\frac{14}{2}$
4	$\frac{11}{3}$	K
●	7	8

K+L=?

- A)  $\frac{11}{12}$  B)  $\frac{13}{12}$  C)  $\frac{3}{2}$  D)  $\frac{3}{4}$  E) 3

10.

11	81	4	M
13	49	L	25
17	K	16	81
20	13	8	

K-M-L=?

- A) 0 B) 5 C) 7 D) 9 E) 10

6.

	∩	∩
∩		∩
+	∩	∩

∩ + ∩ + ∩ = ?

- A) ∩ ∩ ∩ ∩ ∩  
 B) ∩ ∩ ∩ ∩ ∩ ∩ ∩  
 C) ∩ ∩ ∩ ∩ ∩ ∩ ∩ ∩ ∩  
 D) ∩ ∩ ∩ ∩ ∩ ∩ ∩ ∩ ∩ ∩ ∩  
 E) ∩ ∩ ∩ ∩ ∩ ∩ ∩ ∩ ∩ ∩ ∩ ∩ ∩

9.

★	96	75	53
13	A	16	12
29	B	19	19
31	19	16	C

$\Rightarrow \frac{B-A}{C} = ?$

- A) 9 B) 7 C) 5 D) 3 E) 1

8.

☹	7	13
9	8	11
23	15	K

☹	5	7
10	15	9
9	12	L

$\frac{L}{K} = ?$

- A) 2 B) 3 C) 4 D) 5 E) 6

13.

- A) 41 B) 43 C) 45 D) 46 E) 47

19	33	?
62	76	84
5	19	27

12.

- A) 20 B) 25 C) 30 D) 35 E) 40

$k+l+m=?$

m	$l^2$		
l			$8k^2$
k	5l		
x	k	l	m

11.

- A) 27 B) 28 C) 29 D) 30 E) 31

$k+l+m=?$

m	$5l+3$		
l			
k			
+	k	l	m

m		64	
l		m	
k			
x	k	l	m

15.

- A) 13, 39, 53  
 B) 3, 12, 19  
 C) 5, 20, 27  
 D) 7, 26, 39  
 E) 10, 20, 24

a, b, c üçlüsü hangisi olabilir ?  
 Which can be the triple a, b, c?

2	11
3	6

3	31
7	21

4	c
a	b

2	5
1	2

14.

16	?	?	?	6
22	18	?	?	14
28	25	24	21	
34	31	30	27	

- A) 

12	18
24	
- B) 

18	18
12	
- C) 

12	10
18	
- D) 

24	16
12	
- E) 

24	10
18	

16.

92	19	27
39	74	28
?	84	65

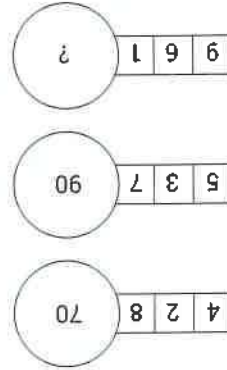
A) 91 B) 71 C) 59 D) 67 E) 17

17.

7	20	26
132	45	31
196	?	35
223	70	38

A) 211 B) 153 C) 99 D) 76 E) 61

18.



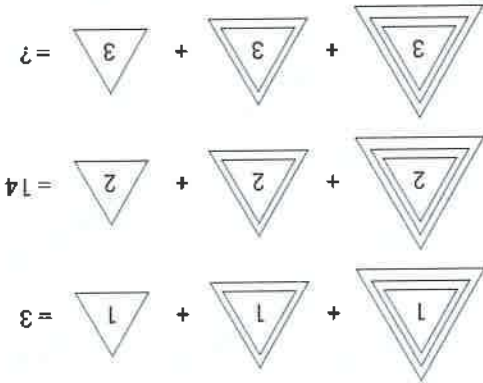
A) 110 B) 157 C) 107 D) 120 E) 211

19.

11	21	25	37	46	64
27	99	86	43	44	51
27	99	86	43	44	51
43	46	67	54	83	?

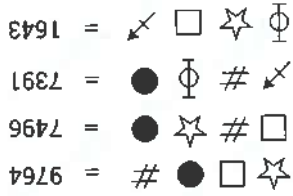
A) 60 B) 78 C) 80 D) 92 E) 99

20.



A) 33 B) 36 C) 39 D) 42 E) 45

21.



⇒ ● # ☆ ↗ = ?

A) 4197 B) 3791 C) 9137 D) 4173 E) 7349

22. 7 8 4 5 9 = 1518  
 3 4 2 1 6 = 79  
 2 9 5 1 8 = 1114  
 1 2 3 4 5 = ?

- A) 69 B) 105 C) 217 D) 309 E) 312

(3 \* 4) \* (5 \* (-2)) = ?

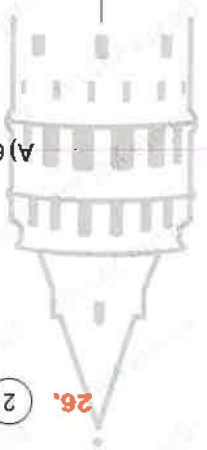
$$j * k = \begin{cases} j, & j \cdot k < 0 \\ -k, & j \cdot k \geq 0 \end{cases}$$

25.  $j * k = j^2 + k$

- A) 20 B) 21 C) 22 D) 23 E) 24

23.  $a \Rightarrow b = (a^2 b^3)^2$   
 (i  $\Rightarrow$  j)  $\Rightarrow$  k = ?

- A)  $i^5 j^4 k^4$   
 B)  $i^{16} j^{24} k^5$   
 C)  $i^{14} j^{16} k^{36}$   
 D)  $i^6 j^{16} k^{32}$   
 E)  $i^{14} j^6 k^9$



26. A) 611 B) 503 C) 485 D) 417 E) 379

24.  $x \bullet y = x^2 y^3 \blacktriangledown y^2 x^3$   
 $x \blacktriangledown y = \frac{y^2}{y^2 - x^2}$   
 $\Rightarrow k \bullet l = ?$

- A)  $\frac{k^2}{l^2 - k^2}$   
 B)  $\frac{1+k^2}{l^2}$   
 C)  $\frac{k^2}{k^2 - l^2}$   
 D)  $1 - \frac{1}{k}$   
 E)  $\frac{k}{l} + 1$

27. 594 374 352 231 ?

- A) 114 B) 110 C) 165 D) 683 E) 132



28. 25, 47, 62, 67, 72, 78, 82, ?

A) 89 B) 90 C) 93 D) 97 E) 99

1.  $\frac{a+b}{3a-2b} = \frac{3}{2} \Rightarrow \frac{b}{a} = ?$

A)  $\frac{9}{7}$  B)  $\frac{8}{5}$  C)  $\frac{8}{3}$  D)  $\frac{3}{2}$  E)  $\frac{5}{1}$

29.

25	42	50	84	100	?
17	8	34	16	68	?

A) 

63
105

B) 

72
115

C) 

16
168

A) 3 B) 4 C) 5 D) 6 E) 7

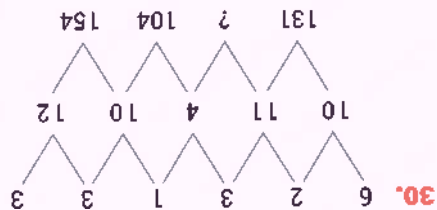
2.  $\frac{a}{b} = \frac{3}{4}$ ,  $a+b=42 \Rightarrow b-a=?$

D) 

32
168

 E) 

84
196



A) 165 B) 158 C) 141 D) 92 E) 27

3.  $5x = 2y = 3z$   
 $\frac{1}{1} + \frac{1}{y} + \frac{1}{z} = 60 \Rightarrow x = ?$

A)  $\frac{30}{1}$  B)  $\frac{15}{1}$  C)  $\frac{12}{1}$  D) 12 E) 30

4.  $\frac{a}{2} = \frac{3}{2}$ ,  $\frac{b}{c} = \frac{5}{4}$ ,  $a - b + c = 44 \Rightarrow b = ?$

- A) 12 B) 24 C) 48 D) 50 E) 60

7. a, b, c sayılarının dördüncü orantılısı x ise,  $\frac{a}{2} = \frac{b}{c} = \frac{x}{5}$  dir. 3, 4, 6 sayılarıyla dördüncü orantılı olan sayı kaçtır?  
If the fourth proportion of the numbers a, b, c is x, then  $\frac{a}{2} = \frac{b}{c} = \frac{x}{5}$ . What is the fourth proportional number with the numbers 3, 4, 6?

- A) 10 B) 8 C) 6 D) 4 E) 3

5. a : b : c = 3 : 4 : 5  
 $3a - 2b + c = 30$   
 $\Rightarrow a + b + c = ?$

- A) 72 B) 60 C) 48 D) 36 E) 24

8.  $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = \frac{2}{5}$   
 $2a - 3c + e = 10$   
 $3d - f = -5$   
 $\Rightarrow b = ?$

- A) 3 B) 4 C) 5 D) 6 E) 10

9. x ve y sayılarının geometrik ortalaması 6, aritmetik ortalaması 4 olduğuna göre, Since the geometric mean of the numbers x and y is 6 and the arithmetic mean is 4,  
 $\frac{2xy}{x+y} = ?$

- A) 4 B) 7 C) 9 D) 10 E) 12

6.  $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = \frac{3}{2}$   
 $\Rightarrow \frac{e \cdot b \cdot d}{a \cdot f \cdot c} = ?$

- A)  $\frac{8}{27}$  B)  $\frac{4}{9}$  C) 1 D)  $\frac{2}{3}$  E)  $\frac{3}{2}$

10. x-1 sayısı, y-2 ile doğru, z-3 ile ters orantılıdır. The number x-1 is directly proportional to y-2 and inversely proportional to z-3.  
x = 7, y = 3 için z = 5 ise  
x = 3, y = 4 için z kaçtır? / what is z?

- A) 15 B) 12 C) 9 D) 7 E) 5



11. Bir işçi günde 6 saat çalışarak bir işi 10 günde bitiriyor.  
Buna göre, 3 işçi günde 10 saat çalışarak aynı işi kaç günde bitirir ?  
A worker works 6 hours a day and finishes a job in 10 days. Accordingly, in how many days do 3 workers work 10 hours a day and finish the same job?

A) 2 B) 5 C) 7 D) 10 E) 12

12.  $\frac{a}{b} = \frac{c}{d} = 2 \Rightarrow \frac{d}{a} = ?$

A) 2 B) 4 C) 8 D) 10 E) 12

15.  $2006^2 - 2005 \cdot 2007 = ?$

A) -1 B) 0 C) 1 D) 2003 E) 2006

14. 20 tane sayının aritmetik ortalaması 18 dir. Bu sayıların herbirinden 2 çıkarsak yeni aritmetik ortalamaya kaç olur ?  
The arithmetic mean of 20 numbers is 18. If we subtract 2 from each of these numbers, what will be the new arithmetic mean?

A) 13 B) 14 C) 15 D) 16 E) 17

13.  $2a = 6b = 5c$  olduğuna göre a,b,c sayıları sırasıyla aşağıdakilerden hangileri ile orantılıdır ?  
The numbers a, b, c are respectively proportional to which of the following?

A) 2, 6, 5 B) 3, 5, 6 C) 15, 5, 6 D) 30, 15, 6 E) 6, 5, 2

16.  $\frac{2}{a} = \frac{3}{b} = \frac{5}{c} \Rightarrow \frac{a-b+c}{a} = ?$

A)  $\frac{5}{3}$  B)  $\frac{5}{2}$  C)  $\frac{3}{2}$  D)  $\frac{2}{3}$  E)  $\frac{2}{5}$



17.  $n \in \mathbb{N}$   
 $3+5+7+\dots+(2n-1) = 399$   
 $\Rightarrow n = ?$

- A) 17 B) 18 C) 19 D) 20 E) 21

20.  $\frac{n \cdot (n+1)!}{(n-1)!} = 12 \Rightarrow n = ?$

- A) 2 B) 3 C) 4 D) 5 E) 6

18. a, b ve c gerçel (real) sayılardır.  
a, b and c are real numbers.  
 $\frac{a}{b^3} > 0$ ,  $\frac{c^3}{a^2} < 0$ ,  $\frac{a}{c^5} < 0$

olduğuna göre a, b, c nin işaretleri sırasıyla hangisidir?  
What are the signs of a, b, c respectively?

- A) +, +, -  
B) -, -, +  
C) -, +, -  
D) +, -, +  
E) +, +, +

19.  $A = 3 \cdot 5 + 4 \cdot 7 + 5 \cdot 9 + \dots + 19 \cdot 37$   
 $= 3 \cdot 7 + 4 \cdot 9 + 5 \cdot 11 + \dots + 19 \cdot 39 = ?$

- A) A + 285  
B) A + 374  
C) A + 300  
D) A + 226  
E) A + 35

22.  $a = -3$ ,  $b = 2$   
 $= \frac{a^3 - b^3 - 5}{a^2 - b^2 - 15} = ?$

- A) -4 B) -3 C) -2 D) 2 E) 4

21.  $3 \cdot 9^n$  sayısının 28 tane tam sayı böleni olduğuna göre, n kaçtır?  
 $3 \cdot 9^n$  has 28 integer divisors, what is n?

- A) 6 B) 7 C) 8 D) 9 E) 10

23.  $a, b, c, \in \mathbb{Z}$ 

$(3a - 7b + 10)^{6+c}$  sayısı negatif tek sayı olduğuna göre aşağıdakilerden hangisi daima çift sayı olur?  
 $(3a - 7b + 10)^{6+c}$  eğer tek sayı ise  $(3a - 7b + 10)^{6+c}$  negatif tek sayıdır.  $(3a - 7b + 10)^{6+c}$  eğer çift sayı ise  $(3a - 7b + 10)^{6+c}$  pozitif çift sayıdır.

- A)  $a-b+c$  B)  $(a+b) \cdot c$  C)  $a+b+c$   
 D)  $a(b+c)$  E)  $a+b \cdot c$

$$24. \frac{3^3+6^3+9^3+\dots+90^3}{2^3+4^3+6^3+\dots+60^3} = ?$$

- A)  $\frac{3}{2}$  B)  $\frac{2}{3}$  C)  $\frac{4}{9}$  D)  $\frac{8}{27}$  E)  $\frac{27}{8}$

25.  $x, y, z, t$  farklı asal sayılardır.

$x, y, z, t$  are different prime numbers.

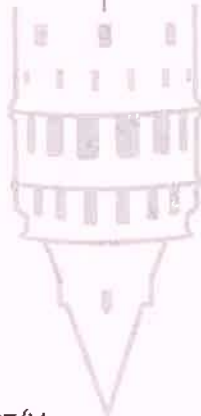
$$A = x^2 \cdot y^2 \cdot z \cdot t^2$$

$$B = x^2 \cdot y^4 \cdot z^3$$

$$C = x \cdot y^3 \cdot t^3$$

$$\Rightarrow \frac{OBEB(A, B)}{OBEB(B, C)} = ?$$

- A)  $\frac{x}{y \cdot z}$  B)  $\frac{x \cdot z}{y}$  C)  $x \cdot y \cdot z$   
 D)  $x \cdot y \cdot t$  E)  $y \cdot z$



$$27. 7^x - 7^{-x} = 5 \Rightarrow 7^{2x} + 7^{-2x} = ?$$

- A) 23 B) 25 C) 27 D) 29 E) 31

26.  $x > 0 < y$ 

$$\sqrt{x^2} - \sqrt[3]{y^3} + \sqrt[4]{(x-y)^4} = ?$$

- A)  $-2x$  B)  $-x$  C)  $x-y$   
 D)  $x+y$  E)  $2x-2y$

$$28. x - 3\sqrt{x} = 8 \Rightarrow x^2 - 25x + 4 = ?$$

- A) -60 B) -36 C) 20 D) 24 E) 36

29.  $x+2(x+2)-1 = \frac{x+1}{x+1} = ?$

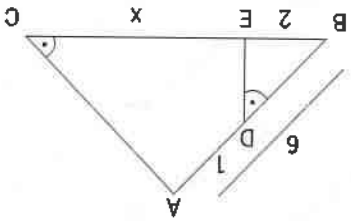
- A) -3
- B)  $2x-3$
- C)  $3-x$
- D) 3
- E)  $x+3$

30.  $x-2=y \Rightarrow |x-y|+|y-x|=?$

- A) -4
- B) -2
- C) 0
- D) 2
- E) 4

2.  $m(\widehat{BDE}) = m(\widehat{ACB})$

- $|AD| = 1$
- $|BE| = 2$
- $|AB| = 6$
- $|EC| = ?$



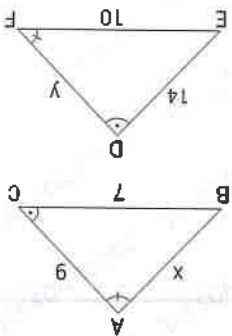
- A) 7
- B) 8
- C) 11
- D) 12
- E) 13

1.  $m(\widehat{BAC}) \cong m(\widehat{DFE})$

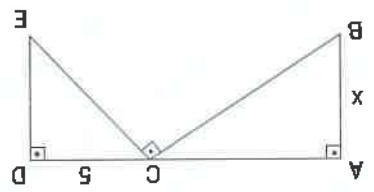
$m(\widehat{BCA}) \cong m(\widehat{EDF})$

- $|BC| = 7$
- $|AC| = 9$
- $|EF| = 10$
- $|DE| = 14$
- $y-x = ?$

- A) 9
- B) 11
- C) 12
- D) 13
- E) 14

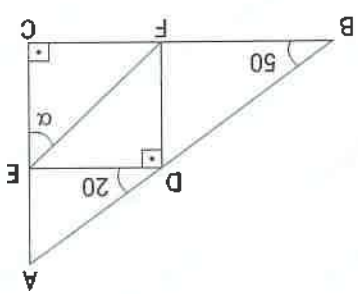


3.  $\widehat{BC} \perp \widehat{CE}$   
 $\widehat{AD} \perp \widehat{DE}$   
 $\widehat{AB} \perp \widehat{AD}$   
 $|\widehat{AC}| = 2|\widehat{DE}|$   
 $|\widehat{AB}| = x = ?$



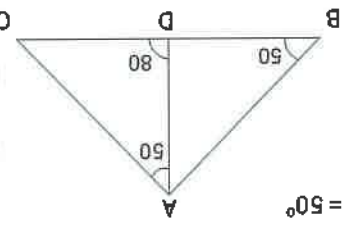
- A) 5    B) 6    C) 9    D) 10    E) 12

5.  $\widehat{CBA} \sim \widehat{DEF}$   
 $m(\widehat{ADE}) = 20$   
 $m(\widehat{ABC}) = 50$   
 $[\widehat{DE}] \perp [\widehat{DF}]$   
 $[\widehat{AC}] \perp [\widehat{BC}]$   
 $\alpha = ?$



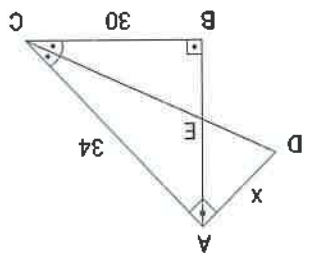
- A) 10    B) 20    C) 30    D) 40    E) 50

4.  $m(\widehat{ABC}) = m(\widehat{DAC}) = 50^\circ$   
 $m(\widehat{ADC}) = 80^\circ$   
 $|\widehat{AD}| = x$   
 $|\widehat{AC}| = y$   
 $|\widehat{BD}| = n$   
 $x$  ve  $y$  cinsinden  $n$  değeri nedir?  
 what is  $y$  in terms of  $x$ ?



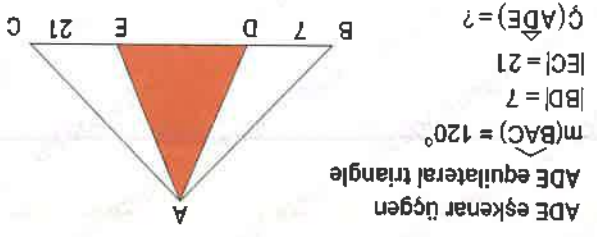
- A)  $\frac{x}{y^2 - x^2}$   
 B)  $\frac{x}{y^2 + x^2}$   
 C)  $\frac{x}{x^2 - y^2}$   
 D)  $\frac{y}{x^2 - y^2}$   
 E)  $\frac{x}{y^2 - x}$

6.  $[\widehat{AD}] \perp [\widehat{AC}]$   
 $[\widehat{AB}] \perp [\widehat{BC}]$   
 $m(\widehat{ACD}) = m(\widehat{DCB})$   
 $|\widehat{BC}| = 30$   
 $|\widehat{C}| = 34$   
 $|\widehat{AD}| = x = ?$



- A) 7,5    B) 8,5    C) 9    D) 9,5    E) 10

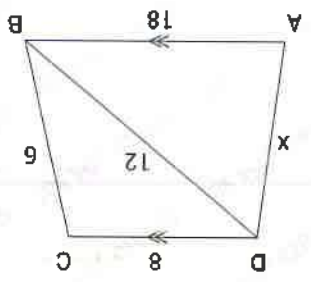
7. ADE eşkenar üçgen  
ADE eşilateral triangle  
 $m(\widehat{BAC}) = 120^\circ$



- A)  $14\sqrt{3}$
- B)  $17\sqrt{3}$
- C)  $18\sqrt{3}$
- D)  $20\sqrt{3}$
- E)  $21\sqrt{3}$

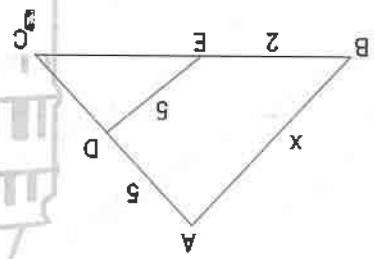
$\hat{C}(\widehat{ADE}) = ?$   
 $|EC| = 21$   
 $|BD| = 7$   
 $m(\widehat{BAC}) = 120^\circ$

9.  $[CD] \parallel [AB]$   
 $|CD| = 8$   
 $|BC| = 6$   
 $|BD| = 12$   
 $|AB| = 18$   
 $|AD| = x = ?$



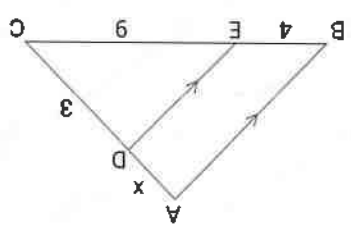
- A) 6
- B) 7
- C) 8
- D) 9
- E) 10

8.  $|AD| = |DE| = 5$   
 $|AC| = 8$   
 $|BE| = 2$   
 $|BC| = 6$   
 $|AB| = x = ?$



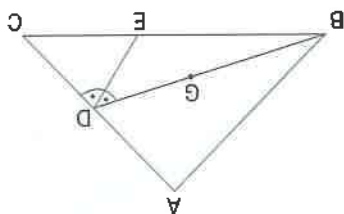
- A) 5
- B) 6
- C) 9
- D) 10
- E) 12

10.  $[AB] \parallel [DE]$   
 $|DC| = 3$   
 $|BE| = 4$   
 $|EC| = 9$   
 $x = ?$



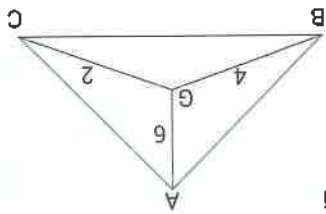
- A)  $\frac{1}{3}$
- B)  $\frac{3}{2}$
- C) 1
- D)  $\frac{3}{4}$
- E) 12

11. G: ağırlık merkezi  
Center of gravity  
 $m(\widehat{BDE}) = m(\widehat{EDC})$   
 $|GD| = 2|DC|$   
 $\frac{|EC|}{|BC|} = ?$



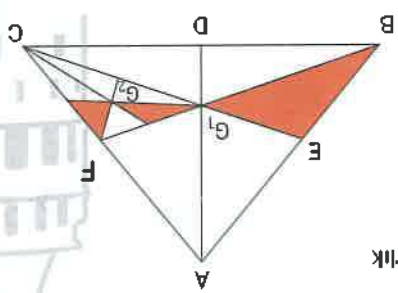
- A)  $\frac{1}{3}$
- B)  $\frac{1}{6}$
- C)  $\frac{1}{7}$
- D)  $\frac{1}{8}$
- E)  $\frac{1}{9}$

13. G: ABC ağırlık merkezi  
Center of gravity  
 $|GC| = 2$   
 $|BG| = 4$   
 $|AG| = 6$   
 $|BC| = ?$



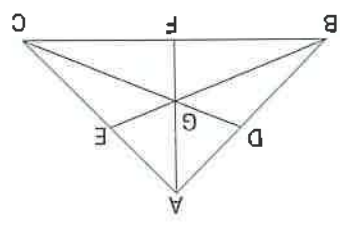
- A) 2
- B) 4
- C) 6
- D) 8
- E) 10

12. G: ABC üçgeninin ağırlık merkezi  
Center of gravity  
 $G_2: G_1CF$  üçgeninin ağırlık merkezi  
Center of gravity  
 $\frac{TA}{A(\widehat{ABC})} = ?$



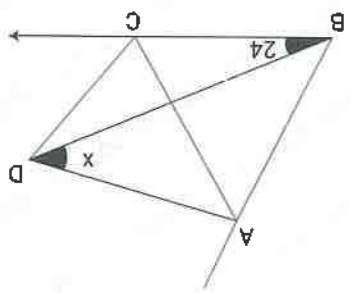
- A)  $\frac{3}{2}$
- B)  $\frac{5}{2}$
- C)  $\frac{7}{3}$
- D)  $\frac{3}{8}$
- E)  $\frac{9}{2}$

14. G: ağırlık merkezi  
Center of gravity  
 $|GC| + |BG| + |AG| = 14$   
 $|AF| + |BE| + |DC| = ?$

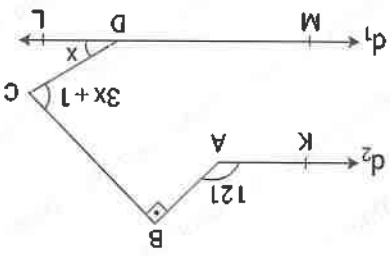


- A) 14
- B) 16
- C) 18
- D) 20
- E) 21

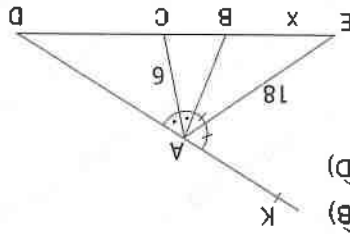
17.  $|BC| = |CD|$   
 D;  $\triangle ABC$  nin dış teğet çemberinin merkezi  
 D is the center of the outer tangent circle of  $\triangle ABC$   
 $m(\widehat{DBC}) = 24^\circ$   
 $m(\widehat{ADB}) = x = ?$   
 A) 42 B) 48 C) 80 D) 84 E) 88



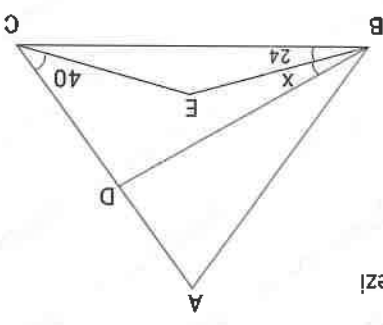
20.  $d_1 \parallel d_2$   
 $m(\widehat{KAB}) = 121$   
 $m(\widehat{ABC}) = 90^\circ$   
 $m(\widehat{BCD}) = 3x + 1$   
 $m(\widehat{CDL}) = x$   
 $m(\widehat{CDM}) = ?$   
 A) 120 B) 130 C) 140 D) 150 E) 165



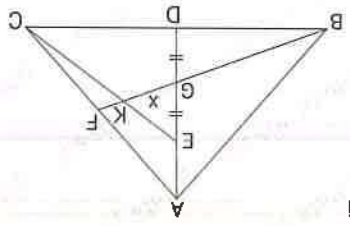
16.  $m(\widehat{KAE}) = m(\widehat{EAB})$   
 $m(\widehat{BAC}) = m(\widehat{CAD})$   
 $|AC| = 6$   
 $|AE| = 18$   
 $|BC| = \sqrt{10}$   
 $|EB| = x = ?$   
 A)  $\sqrt{10}$  B)  $2\sqrt{10}$  C)  $3\sqrt{10}$  D)  $4\sqrt{10}$  E)  $5\sqrt{10}$



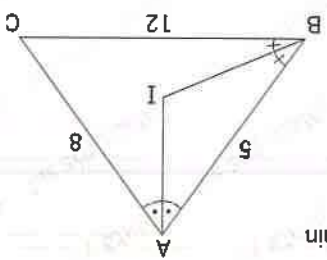
19. E;  $\triangle ABC$  diklik merkezi  
 orthocentre  
 [BD],  $\triangle ABC$  açısını açıortay!  
 BD is the bisector of  $\triangle ABC$  angle.  
 $m(\widehat{EBC}) = 24$   
 $m(\widehat{ECD}) = 40$   
 $x = ?$   
 A) 6 B) 7 C) 8 D) 9 E) 12



15. G;  $\triangle ABC$  ağırlık merkezi  
 Center of gravity  
 $|GE| = |GD|$   
 $|BF| = 18$   
 $|GK| = x = ?$   
 A) 2 B) 3 C) 4 D) 5 E) 6



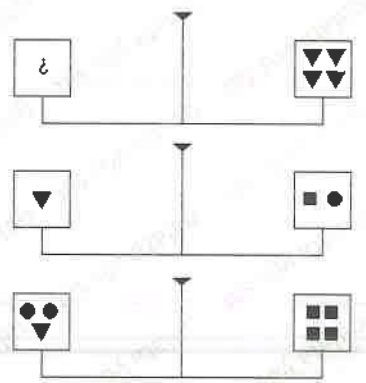
18. I; içteğet çemberinin merkezi  
 center is the inner tangent circle  
 $|AB| = 5$   
 $|AC| = 8$   
 $|BC| = 12$   
 $\frac{A(\widehat{ABI})}{A(\widehat{ABC})} = ?$   
 A)  $\frac{1}{2}$  B)  $\frac{3}{1}$  C)  $\frac{4}{1}$  D)  $\frac{5}{1}$  E)  $\frac{6}{1}$







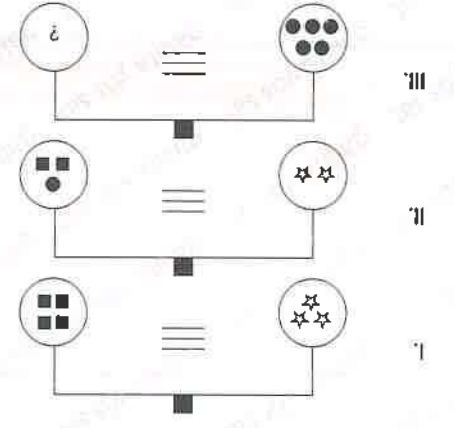
1.



Yukarıdaki terazilerin üçüde dengededir. Üçüncü terazi deki " ? " ağırlıklarından hangisini göstermektedir. All three of the above scales are in balance. Which of the following does the " ? " in the third scale show?

- A) ●●●●●●●●  
 B) ●●●●●●●●  
 C) ●●●●●●●●  
 D) ●●●●●●●●  
 E) ●●●●●●●●

2.

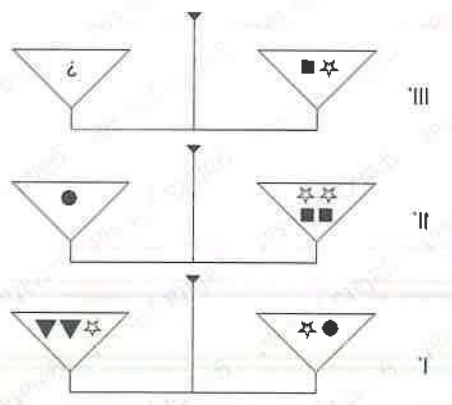


Yukarıdaki terazilerin üçüde dengeli olduğuna göre, III. terazide soru işareti ağırlıklarından hangisini göstermektedir? All three of the above scales are in balance. Which of the following indicates the question mark on the third scale?

- A) ■ ■ ■ ■  
 B) ☆ ☆ ☆ ☆  
 C) ☆ ☆ ☆  
 D) ■ ■ ■ ☆  
 E) ● ● ● ☆

III.  
 II.  
 I.

3.

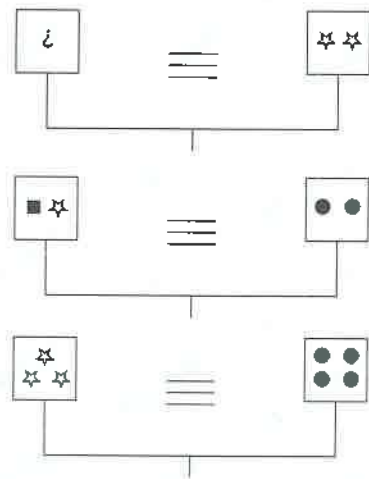


- A) △  
 B) △ ☆  
 C) ●  
 D) △ △  
 E) ☆ ☆

I. ve II. teraziler dengededir III. terazinin dengede olabilmesi için sağ kefeye ▲ türü ağırlıktan kaç tane koymak gerekiyor? Scale I. and II. are balanced to keep scale III. balanced how many weights should be placed on the right hand side of the right hand side of the scale

- A) 1  
 B) 2  
 C) 3  
 D) 4  
 E) 5

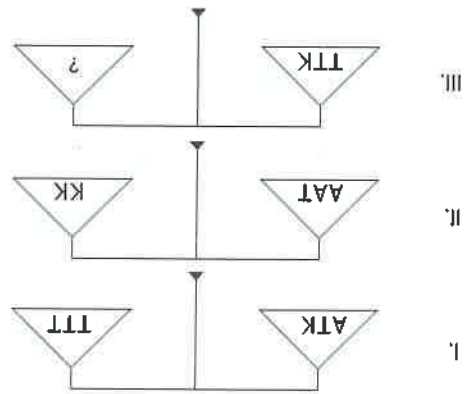
5.



Soru işaretli yerine aşağıdakilerden hangisi gelmelidir?  
Which of the following should be instead of the  
question mark?

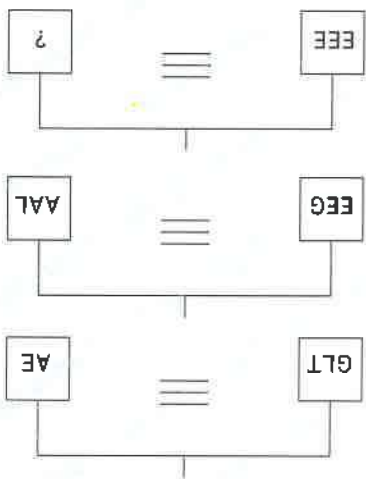
- A) ■ ■ ■
- B) ● ● ●
- C) ● ● ●
- D) ■ ● ☆
- E) ● ● ■

6.



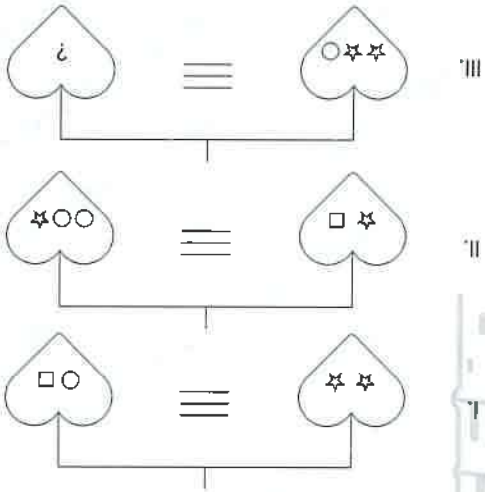
- A) KA
- B) AAAT
- C) TTKK
- D) KAA
- E) KTA

7.



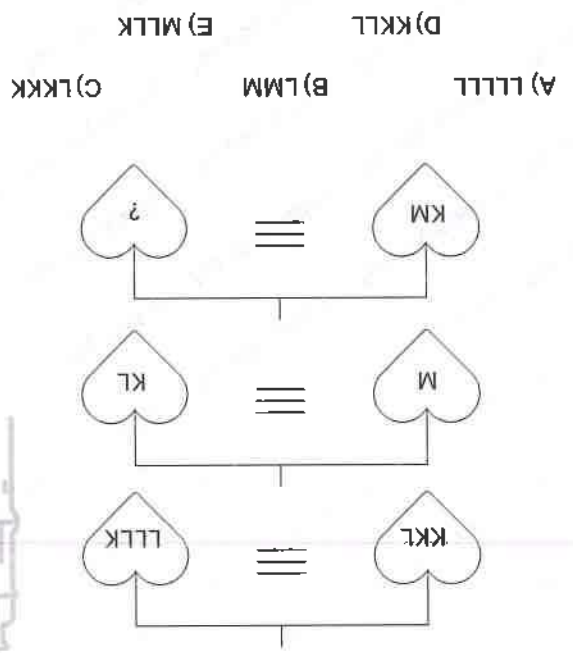
- A) TLAA
- B) ATTL
- C) LLAT
- D) GLTT
- E) AATT

8.

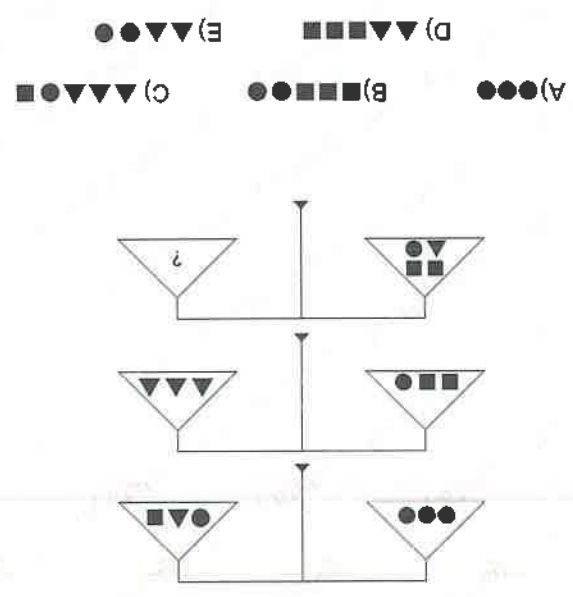


- A) □ □
- B) ○ ○
- C) □ ☆
- D) ○ □
- E) ☆ ○

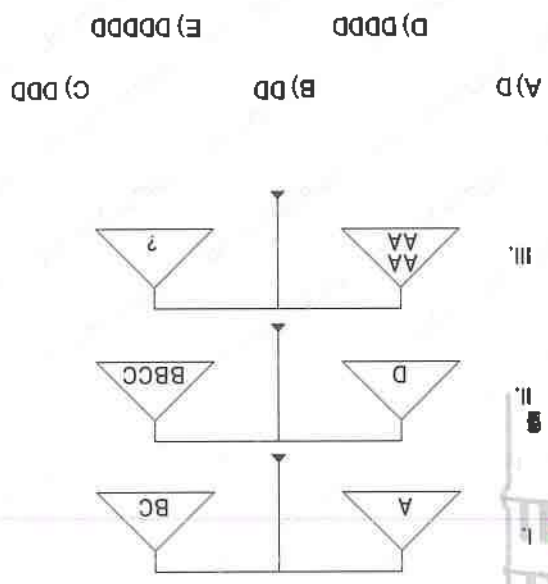
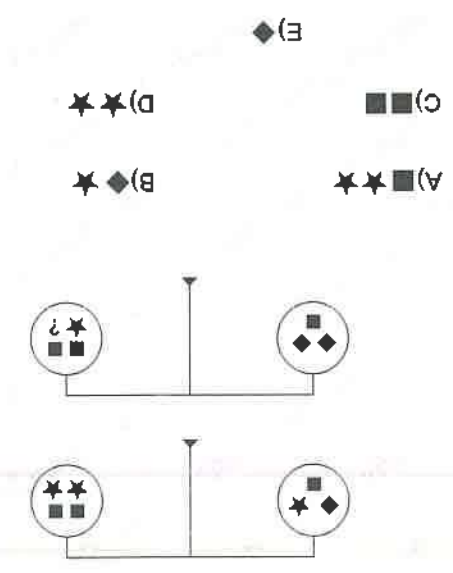
10.



9.



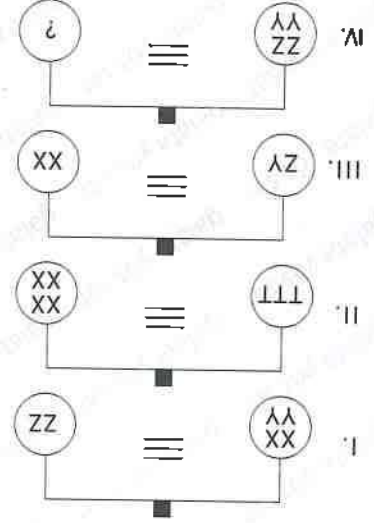
11.







A) TTT B) XXT C) TTY D) TTX E) YXXT

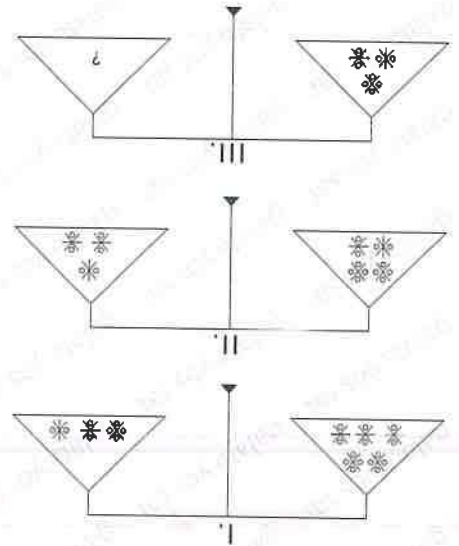


18.

A) 7 B) 8 C) 9 D) 10 E) 11

Scale I, and II are balanced to keep scale III. balanc- ced, how many weights should be placed on the right hand side of the scale ?

I. ve II. terazi dengededir. III. terazinin dengede olabil- mesi için sağ keteğe \* türü ağırlıktan kaç tane koymak gerekir ?



17.

56 121 242 verilen üç sayı arasındaki kuralı cevap şıklarından hangi üç sayı arasında vardır ?  
Which of the following has the same rule as the rule of the relation between 56 121 242 numbers?

A) 98 187 967  
B) 25 51 103  
C) 86 154 605  
D) 10 46 95  
E) 16 32 64

20.

I. 19 29  
II. 27 36  
32 37  
98 115  
104 ?

A) 109 B) 110 C) 111 D) 112 E) 113

$$I. \frac{a \sqrt{b} + \frac{a+b}{1}}{1} = 1 + \frac{a^2 + b^2}{1}$$

II.  $1 \sqrt{2} = ?$

A)  $\frac{2}{1}$  B) 1 C)  $\frac{2}{3}$  D) 3 E)  $\frac{2}{5}$

22. 16 \* 21 = 37  
38 \* 14 = 89  
62 \* 52 = 68  
54 \* 23 = ?

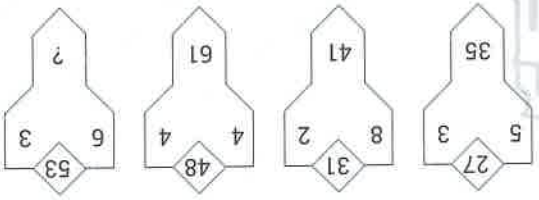
A) 98 B) 127 C) 141 D) 153 E) 205

- A) 5 B) 4 C) 3 D) 2 E) 0

$c = ?$

			c
		$c+20$	b
$b+8$		$c+23$	a
c	b	a	+

- A) 54 B) 62 C) 76 D) 97 E) 111



26.

25.

23.  $\text{Yin-Yang} + \text{Circle with horizontal line} = ?$

A) B) C) D) E)

Questions 23 and 24 will be answered according to the symbols above.

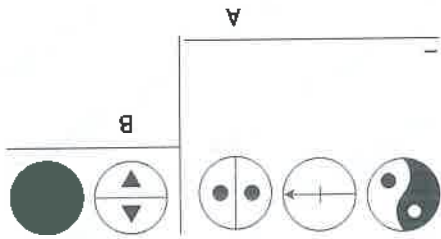
23. ve 24. sorular yukarıdaki sembollere göre cevaplanacaktır ?

0 9 8 7 6

1 2 3 4 5

Özellik Feature

24.



28.

25	81	61	K
17	96	76	141
14	57	L	102
4	51	31	27

$\Rightarrow K+L=?$

- A) 75    B) 98    C) 122    D) 151    E) 163

- A) 100    B) 120    C) 140    D) 160    E) 180

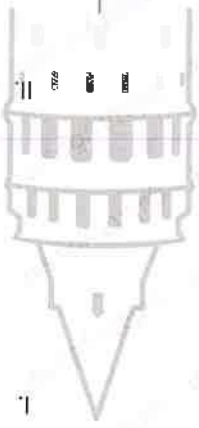
$= K-L=?$

r		L
p	K	
x	p	r

	r	
	p	6
-	p	r

r		
p		20
+	p	r

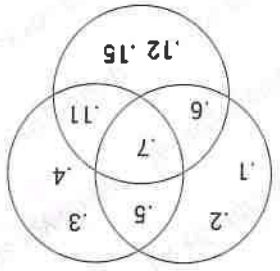
27.



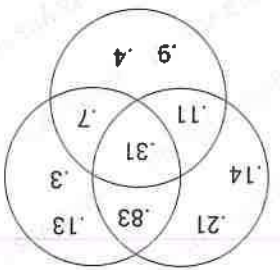
30.

29.

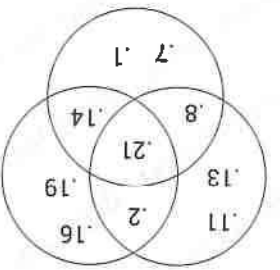
- A) 19    B) 27    C) 30    D) 37    E) 42



III.



II.



I.

- A) 9    B) 10    C) 11    D) 12    E) 13

47	47	47	3	4	?
37	37	100	5	3	12
21	21	83	10	2	4
14	14	17	5	2	6



1.  $A = \{a\}, B = \{b\}, C = \{c, d, e\}$

kümesi için aşağıdakilerden hangisi yanlıştır?

which of the following is wrong for the set A?

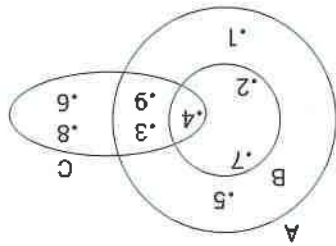
- A)  $b \in A$
- B)  $\{a\} \in A$
- C)  $\{c, d\} \in A$
- D)  $\{b\} \in A$
- E)  $\{e\} \in A$

2.  $A = \{1, 2, 3, 4\}$

$B = \{3, 4, 5, 6\}$

$= S(A-B) = ?$

- A) 2
- B) 3
- C) 4
- D) 5
- E) 6



Yukarıda verilen A, B, C kümeleri için aşağıdakilerden hangisi yanlıştır?

which of the following is false for sets A, B, C given above?

- A)  $A \cap B = \{2, 4, 7\}$
- B)  $A \cap C = \{3, 9\}$
- C)  $B \cap C = \{4\}$
- D)  $s(A) = 7$
- E)  $s(C) = 5$

4.

$A = \{x \mid 50 \leq x \leq 200, x = 5k, k \in \mathbb{N}\}$   
 $B = \{x \mid 60 \leq x \leq 240, x = 3m, m \in \mathbb{N}\}$

$= s(A \cap B) = ?$

- A) 5
- B) 7
- C) 8
- D) 10
- E) 11

5.

$s(A) = 2 \cdot s(B)$   
 $s(A \cap B) = 6$   
 $s(A \cup B) = 30$   
 $= s(B) = ?$

- A) 12
- B) 14
- C) 16
- D) 18
- E) 20

6.

$A \subset U, B \subset U$   
 $s(A) + s(B) = 32$   
 $s(A') + s(B) = 26$   
 $\Rightarrow s(U) = ?$

- A) 28
- B) 29
- C) 30
- D) 31
- E) 32

7.

$A \subset U, B \subset U$  (U: Evrensel küme) / Universal set  
 $(A \cup B) \cap (B' - A) = ?$

- A)  $A \cap B$
- B)  $A - B$
- C)  $A \cup B$
- D)  $A' - B$
- E)  $\emptyset$

8.  $A = [0,1], B = [-1,5], C = \left[\frac{1}{2}, 8\right]$   
 $\Rightarrow (A-B) \cup C = ?$

- A)  $[1,8]$  B)  $[1,8]$  C)  $(1,8)$  D)  $[0,8]$  E)  $[0,1]$

12.  $A \neq \emptyset, B \neq \emptyset$   
 $s(A \cup B) = 6, s(A \cap B) = 3 \Rightarrow \max s(A) = ?$

- A) 8 B) 7 C) 6 D) 5 E) 4

13.  $A = \{a, b, c, d, e\}$  kümesinin alt kümelerinin kaç tanesinde d elemanı bulunmaz?  
 How many of the subsets of the A set do not have the d element?

- A) 4 B) 8 C) 16 D) 24 E) 32

9.  $A = \{x: x \in \mathbb{Z} \vee |x-1| \leq 3\}$   
 $B = \{x: x \in \mathbb{Z} \vee |x+1| > 3\}$   
 $\Rightarrow s(A-B) = ?$

- A) 4 B) 5 C) 16 D) 32 E) 36

10.  $A' \subset B'$  olmak üzere A ve B kümeleri veriliyor.  
 A and B sets are given.

Buna göre,  $A \cap B'$  ifadesi hangisine eşittir?

Accordingly, which of the following is equal to  $A \cap B'$ ?

- A)  $A \cup B$  B)  $A \setminus B$  C)  $B \setminus A$  D) A' E) B

14.  $(aa) + (bb) = 77$

$(ab) - (ba) = 27$

$\Rightarrow a-b = ?$

- A) 10 B) 15 C) 20 D) 35 E) 30

11.  $s(A \cup B) = 40$

$s(B) = 4 \cdot s(A-B)$

$s(A \cap B) = 2 \cdot s(A-B)$

olduğuna göre, s(A) kaç elemandır?

Accordingly, how many elements does s(A) have?

- A) 8 B) 10 C) 12 D) 16 E) 18

15.  $\sqrt{20 + \sqrt{20 + \sqrt{20 + \dots}}} = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

16.  $(x+y+z)^2 - (x-y+z)^2 = ?$

- A)  $4x \cdot (y+z)$   
 B)  $4y \cdot (x+z)$   
 C)  $4z \cdot (x+y)$   
 D)  $4y \cdot (x-z)$   
 E)  $4x \cdot (y-z)$

17.  $(402)_7 = (xyz)_9 \Rightarrow x+y+z = ?$

- A) 5  
 B) 6  
 C) 7  
 D) 8  
 E) 9

18.  $\frac{(m-6)^j + (m-3)^i}{(m-2)^i + (6-m)^j} = ?$

- A)  $\frac{5}{7}$   
 B)  $\frac{10}{7}$   
 C)  $\frac{15}{7}$   
 D)  $\frac{20}{7}$   
 E)  $\frac{25}{7}$

19.  $0i + 6i + 12i + \dots + 60i$  toplamın onlar basamağındaki rakam kaçtır?  
 what is the number in the tens-digit of the sum?

- A) 1  
 B) 2  
 C) 3  
 D) 4  
 E) 6

20.  $\frac{1}{1} \geq \frac{2x+a}{12} \geq \frac{1}{1}$  s.s.  $= (-3, 3]$

= a = ?

- A) -3  
 B) 0  
 C) 3  
 D) 6  
 E) 8

21. Üç basamaklı xyz sayısı için  $xyz = x^8 + y^8 + z^8$  oluyorsa bu sayıya "Armstrong" sayı denir. If  $xyz = x^8 + y^8 + z^8$ , this number is called the "Armstrong" number.

Örneğin  $153 = 1^3 + 5^3 + 3^3$  olduğundan 153 bir Armstrong sayıdır. As an example, since  $153 = 1^3 + 5^3 + 3^3$  is an Armstrong number.

3A1 sayısı bir Armstrong sayısı olduğuna göre, A rakamı kaçtır?  
 Since the number 3A1 is an Armstrong number, what is the digit A?

- A) 5  
 B) 6  
 C) 7  
 D) 8  
 E) 9

22.  $\frac{0,005 \cdot 10^{35} + 0,8 \cdot 10^{33}}{10^{32}} = ?$

- A) 5  
 B) 6  
 C) 13  
 D)  $4 \cdot 10^{32}$   
 E)  $4 \cdot 10^{33}$

23.  $\sqrt{792}$  ifadesinin yaklaşık değerinin hesaplanabilmesi için aşağıdakilerden hangisinin değeri bilinmelidir ?  
Which of the following should be known to calculate the approximate value of  $\sqrt{792}$  ?

- A)  $\sqrt{2}$   
B)  $\sqrt{5}$   
C)  $\sqrt{11}$   
D)  $\sqrt{14}$   
E)  $\sqrt{22}$

$$24. \frac{2}{7} = \frac{x}{7} = \frac{y}{12} = \frac{z}{12} \Rightarrow \frac{4yz - 8xy}{7xy} = ?$$

- A)  $\frac{6}{1}$   
B)  $\frac{3}{1}$   
C)  $\frac{3}{2}$   
D)  $\frac{4}{3}$   
E)  $\frac{7}{16}$

$$25. x+1 = \frac{1}{2} \Rightarrow \frac{y+1}{x^2+4x+4} = \frac{z}{y^2+6y+9} = ?$$

- A)  $\frac{2}{1}$   
B)  $\frac{4}{1}$   
C) 1  
D) 2  
E) 4

$$26. \frac{b}{a} = \frac{d}{c} = \frac{f}{e} = 4$$

$$= \frac{b+d+f}{a+c+e} = ?$$

- A) 5  
B) 4  
C) 3  
D) 2  
E) 1

$$30. \left[ \frac{1}{1} - \frac{4}{1} \right] : \left[ \frac{6}{1} \cdot \frac{1}{1} \right] \cdot \frac{1}{2} = ?$$

- A)  $\frac{8}{1}$   
B)  $\frac{4}{1}$   
C)  $\frac{2}{1}$   
D) 1  
E) 2

$$29. \frac{a}{c} = \frac{b}{d} = 3$$

$$\Rightarrow \frac{a \cdot d}{b \cdot c} = ?$$

$$a, b, c, d \in \mathbb{R}^+$$

- A) 20  
B) 24  
C) 30  
D) 12  
E) 9

- A) 10  
B) 11  
C) 12  
D) 22  
E) 25

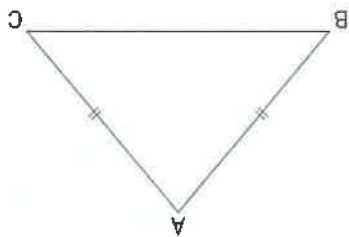
$$28. a, b \in \mathbb{N} \Rightarrow 501 = 5^a \cdot b \Rightarrow \max(a) = ?$$

- A) 102  
B) 106  
C) 108  
D) 116  
E) 120

27. Bir üçgenin dış açılarının ölçüleri 3, 5 ve 7 sayıları ile doğru orantılıdır.  
The dimensions of the outer angles of a triangle are directly proportional to the number 3,5 and 7.  
Buna göre, bu üçgenin en büyük iç açısının ölçüsü kaç derecedir ?  
Accordingly, how many degrees is the measure of the largest inner angle of this triangle?

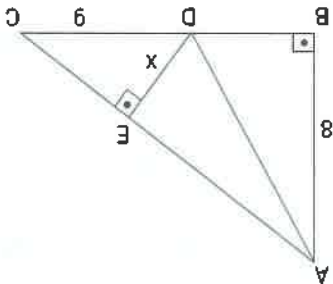
- A) 102  
B) 106  
C) 108  
D) 116  
E) 120

1.  $|AB| = |AC| = 17$   
 $|BC| = 16$   
 $A(\triangle ABC) = ?$



- A) 100 B) 110 C) 120 D) 130 E) 135

4.  $|AB| \perp |BC|$   
 $|AC| \perp |DE|$   
 $|AB| = 8$   
 $|CD| = 9$   
 $|AC| = 12$   
 $x = ?$



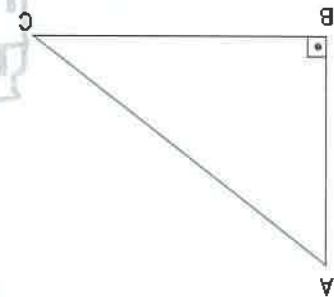
- A) 5 B) 6 C) 7 D) 8 E) 9

2.  $|AB| \perp |BC|$

$|AB| = 9$

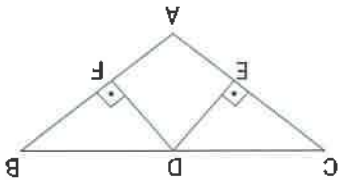
$|BC| = 16$

$A(\triangle ABC) = ?$



- A) 60 B) 65 C) 70 D) 72 E) 80

5.  $|DE| \perp |AC|$   
 $|DF| \perp |AB|$   
 $|AC| = |AB| = 14$   
 $|DE| + |DF| = 2\sqrt{2}$   
 $A(\triangle ABC) = ?$



- A)  $5\sqrt{2}$  B)  $6\sqrt{2}$  C)  $7\sqrt{2}$  D)  $8\sqrt{2}$  E)  $14\sqrt{2}$

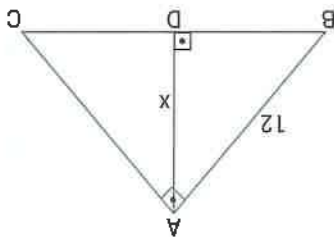
3.  $|AB| \perp |AC|$

$|AD| \perp |BC|$

$|AB| = 12$

$|BC| = 20$

$x = ?$



- A)  $\frac{5}{12}$  B)  $\frac{5}{24}$  C)  $\frac{5}{32}$  D)  $\frac{5}{36}$  E)  $\frac{5}{48}$

6. Bir kenar  $3\sqrt{5}$  olan eşkenar üçgenin alanı nedir?  
 What is the area of the equilateral triangle with an edge  $3\sqrt{5}$ ?

- A)  $\frac{45\sqrt{3}}{4}$  B)  $45\sqrt{3}$  C)  $63\sqrt{3}$  D)  $64\sqrt{3}$  E)  $\frac{65\sqrt{3}}{4}$

7.  $d_1 // d_2$   
 $[KL] \perp [LC]$   
 $\triangle ABC$  eskenar üggen  
 $|KL| = 8\sqrt{3}$   
 $|KL| = 8\sqrt{3}$   
 $A(\triangle ABC) = ?$   
 A)  $24\sqrt{3}$  B)  $30\sqrt{3}$  C)  $32\sqrt{3}$  D)  $48\sqrt{3}$  E)  $64\sqrt{3}$

8.  $m(\widehat{BAC}) = 30^\circ$   
 $|AC| = 8$   
 $|AB| = 14$   
 $A(\triangle ABC) = ?$

A) 24 B) 26 C) 28 D) 30 E) 32

9.  $[DE] // [BC]$   
 $A(\triangle BDE) = 7 A(\triangle ADE)$   
 $|AE| = 4$   
 $|EC| = x = ?$

A)  $6\sqrt{2} - 4$  B)  $4\sqrt{2} + 4$  C)  $6\sqrt{2} + 4$  D)  $8\sqrt{2} - 4$  E)  $8\sqrt{2} + 4$

10.  $\triangle ABC$ : eskenar üggen  
 $\triangle CDE$ : eskenar üggen  
 $[DF] \perp [AC]$   
 $|DF| = 3\sqrt{3}$   
 $|BE| = 15$   
 $|AF| = ?$

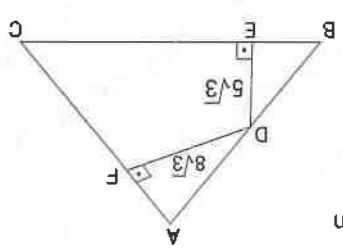
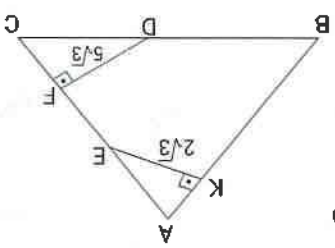
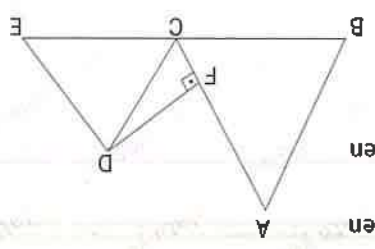
A) 4 B) 5 C) 6 D) 7 E) 8

11.  $\triangle ABC$ : eskenar üggen  
 $\triangle EKL$ : eskenar üggen  
 $[EK] \perp [AB]$   
 $[DF] \perp [AC]$   
 $|EK| = 2\sqrt{3}$   
 $|DF| = 5\sqrt{3}$   
 $|BK| - |BD| = ?$

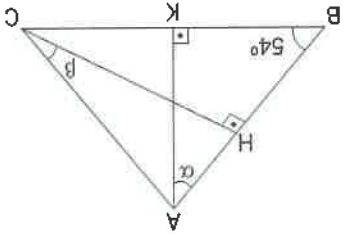
A) 6 B) 7 C) 8 D) 9 E) 10

12.  $\triangle ABC$ : eskenar üggen  
 $\triangle DEF$ : eskenar üggen  
 $[DF] \perp [AC]$   
 $[DE] \perp [BC]$   
 $|DE| = 5\sqrt{3}$   
 $|DF| = 8\sqrt{3}$   
 $|AC| = ?$

A) 22 B) 24 C) 26 D) 28 E) 29

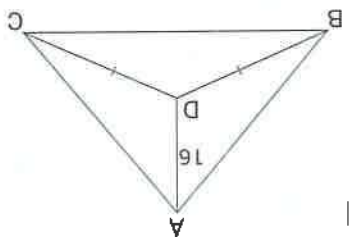


13.  $|AB| = |BC|$   
 $[CH] \perp [AB]$   
 $[AK] \perp [BC]$   
 $m(\widehat{ABC}) = 54^\circ$   
 $\alpha - \beta = ?$



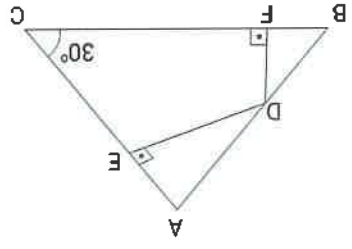
- A) 9 B) 12 C) 13 D) 14 E) 18

16.  $|AB| = |AC| = |BC|$   
 $|BD| = |DC|$   
 $|CD| = 10$   
 $|AD| = 16$   
 $|BC| = ?$



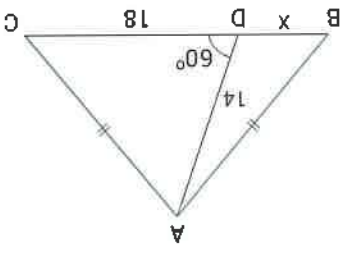
- A)  $6 + 8\sqrt{3}$  B)  $6 + 4\sqrt{3}$  C)  $6 - 4\sqrt{3}$   
 D)  $6 - 2\sqrt{3}$  E)  $5 + 2\sqrt{3}$

14. ABC bir üçgen  
 $|AC| = |BC|$   
 $[DE] \perp [AC]$   
 $[DF] \perp [BC]$   
 $|DE| = 2\sqrt{2}$   
 $|DF| = \sqrt{2}$   
 $|BC| = ?$



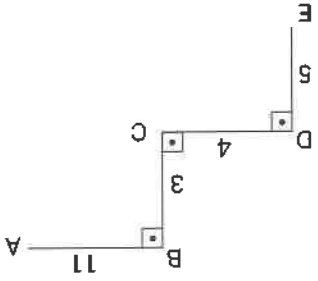
- A)  $4\sqrt{2}$  B)  $5\sqrt{2}$  C)  $6\sqrt{2}$  D)  $7\sqrt{2}$  E)  $8\sqrt{2}$

15. ABC bir üçgen  
 $|AB| = |AC|$   
 $m(\widehat{ADC}) = 60^\circ$   
 $|AD| = 14$   
 $|CD| = 18$   
 $x = ?$



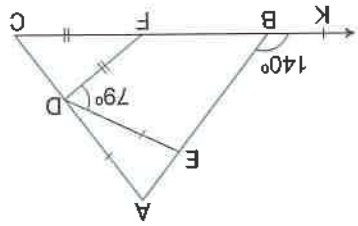
- A) 3 B) 4 C) 5 D) 6 E) 7

18.  $[AB] \perp [BC]$   
 $[BC] \perp [CD]$   
 $[CD] \perp [DE]$   
 $|BC| = 3$   
 $|DC| = 4$   
 $|DE| = 5$   
 $|BA| = 11$   
 $|AE| = ?$

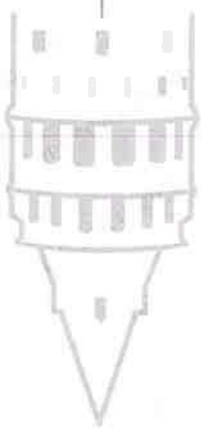


- A) 13 B) 14 C) 15 D) 16 E) 17

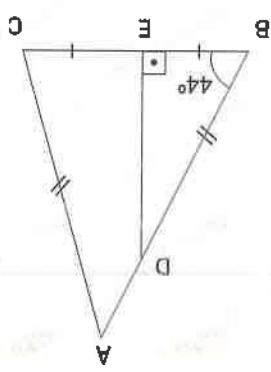
17.  $|AD| = |DE|$   
 $|DF| = |FC|$   
 $m(\widehat{EDF}) = 79^\circ$   
 $m(\widehat{ABK}) = 140^\circ$   
 $m(\widehat{ACK}) = ?$



- A) 59 B) 60 C) 65 D) 67 E) 69

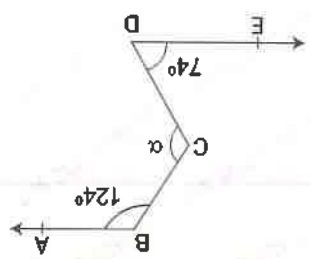


19.  $[DE] \perp [BC]$   
 $|BD| = |AC|$   
 $|BE| = |EC|$   
 $m(\widehat{ABC}) = 44^\circ$   
 $m(\widehat{ACB}) = ?$



- A) 44 B) 45 C) 47 D) 48 E) 50

20.  $[BA] \parallel [DE]$   
 $m(\widehat{ABC}) = 124^\circ$   
 $m(\widehat{BCD}) = \alpha$   
 $m(\widehat{CDE}) = 74^\circ$   
 $\alpha = ?$

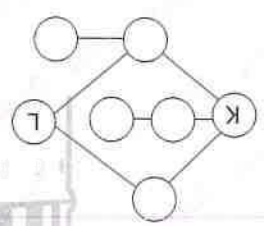
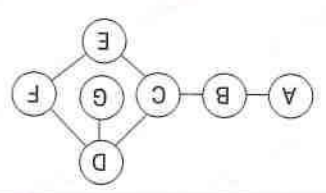


- A) 84 B) 64 C) 120 D) 124 E) 130

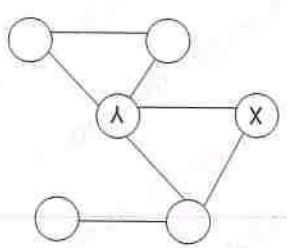
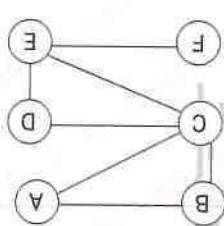




- A) D E
- B) C F
- C) B G
- D) A F
- E) D C

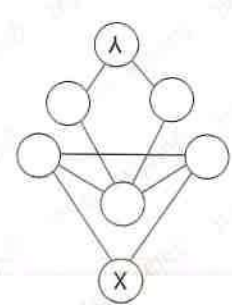
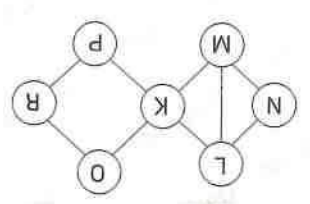


- A) D A
- B) B C
- C) A B
- D) D C
- E) C B

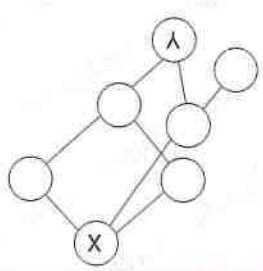
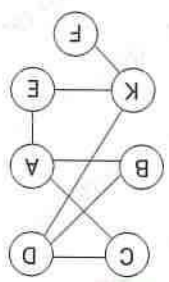


2.

- A) N R
- B) K M
- C) R K
- D) N P
- E) R N



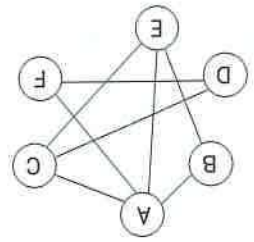
- A) F C
- B) D F
- C) E C
- D) D E
- E) C B



1.

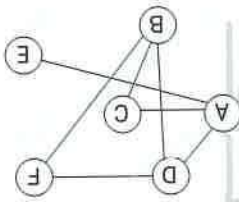
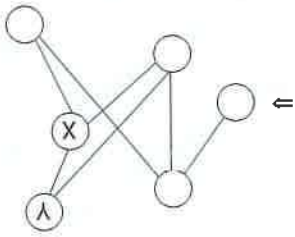
3.

- A)  $\frac{A}{B}$
- B)  $\frac{A}{D}$
- C)  $\frac{C}{B}$
- D)  $\frac{E}{D}$
- E)  $\frac{E}{F}$



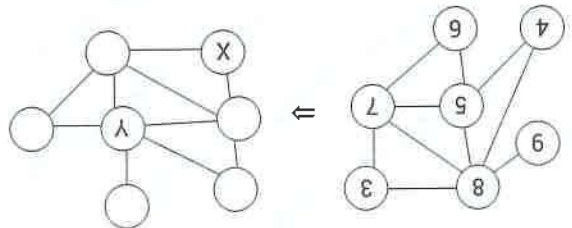
6.

- A)  $\frac{E}{C}$
- B)  $\frac{A}{F}$
- C)  $\frac{B}{F}$
- D)  $\frac{D}{B}$
- E)  $\frac{C}{F}$



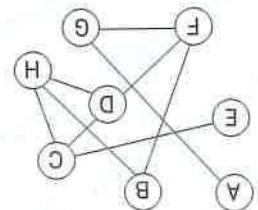
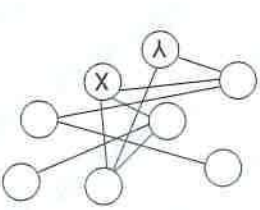
8.

- A)  $\frac{8}{4}$
- B)  $\frac{7}{5}$
- C)  $\frac{6}{8}$
- D)  $\frac{3}{4}$
- E)  $\frac{5}{3}$



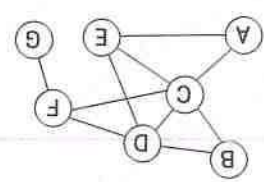
5.

- A)  $\frac{C}{H}$
- B)  $\frac{D}{B}$
- C)  $\frac{H}{B}$
- D)  $\frac{D}{G}$
- E)  $\frac{F}{G}$



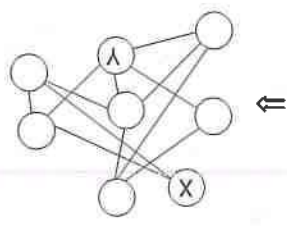
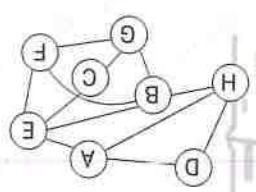
7.

- A)  $\frac{X}{Y}$
- B)  $\frac{A}{B}$
- C)  $\frac{E}{A}$
- D)  $\frac{E}{B}$
- E)  $\frac{G}{A}$

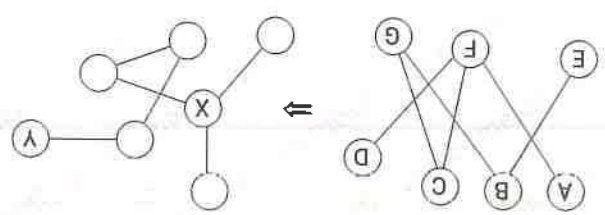


10.

- A)  $\frac{C}{B}$
- B)  $\frac{E}{H}$
- C)  $\frac{H}{D}$
- D)  $\frac{D}{B}$
- E)  $\frac{D}{E}$

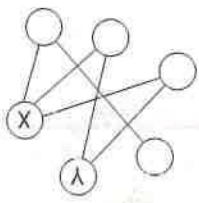
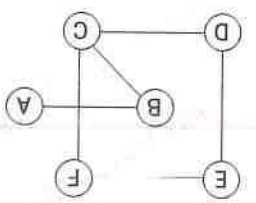


- A)  $\frac{F}{E}$
- B)  $\frac{E}{F}$
- C)  $\frac{A}{B}$
- D)  $\frac{D}{C}$
- E)  $\frac{F}{C}$



9.

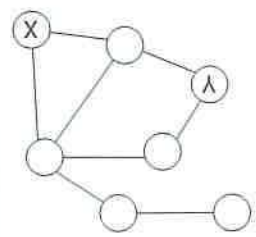
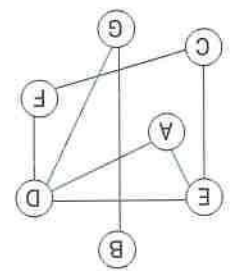
- A)  $\frac{C}{D}$
- B)  $\frac{D}{E}$
- C)  $\frac{C}{F}$
- D)  $\frac{C}{E}$
- E)  $\frac{E}{C}$



11.

- E) F D
  - D) A C
  - C) E B
  - B) B A
  - A) D C
- X / Y

14.

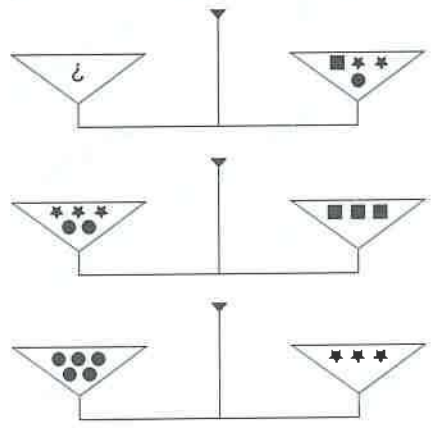


⇔

16.

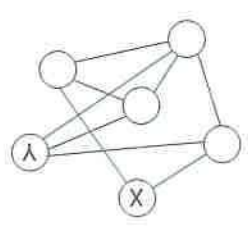
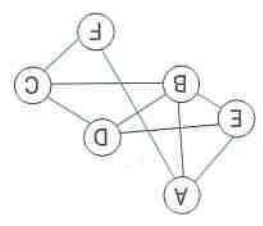


- A) \*\*\*
- B) ●●■
- C) ●●●●\*
- D) ■■■■
- E) ●●●●■



- E) D
  - D) D
  - C) F
  - B) F
  - A) D
- X / Y

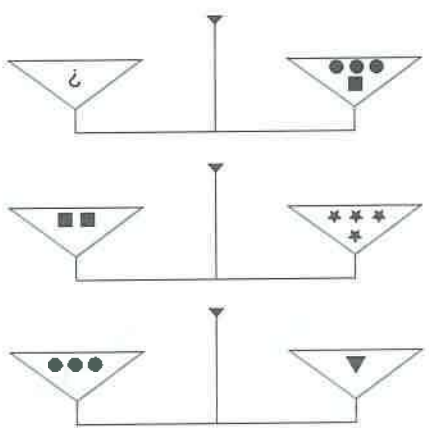
13.



=

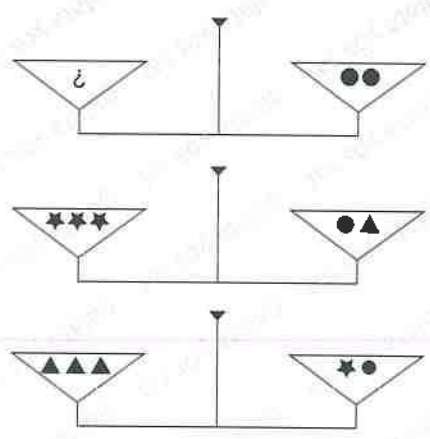
15.

- A) \*\*\*▲
- B) \*●
- C) \*●●■
- D) \*\*\*
- E) ■■■●



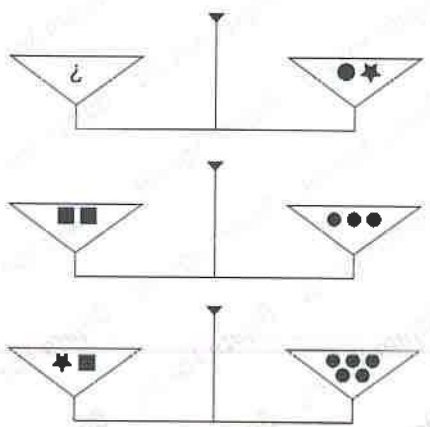


- A) ● ●
- B) ★ ▲
- C) ● ▲
- D) ★ ▲ ▲
- E) ★ ★ ★ ★



18.

- A) ★ ★
- B) ★ ★ ■
- C) ● ● ● ■
- D) ● ■ ★
- E) ● ● ● ★



17.



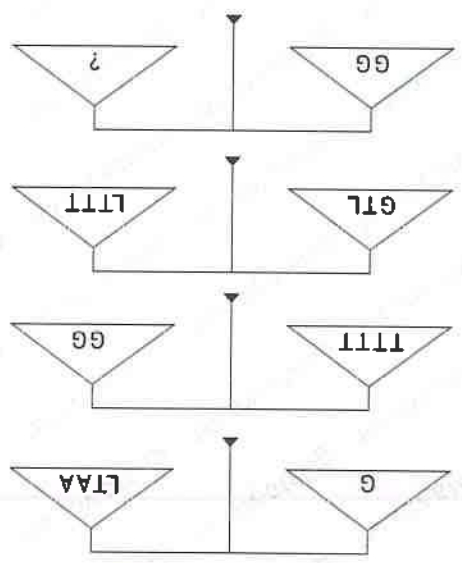
20.

- A) 23
- B) 16
- C) 11
- D) 4
- E) 1

c			
b	81		
a	b+c	28	
x	a	b	c

⇒ a = ?

- A) TTITTAAL
- B) TTTTAA
- C) AAAALL
- D) GTTTT
- E) AATITL



19.

21.

+	x	y	z
x			y
y	$2z+1$		
z	$4x+2$		

$\Rightarrow y-x-z=?$

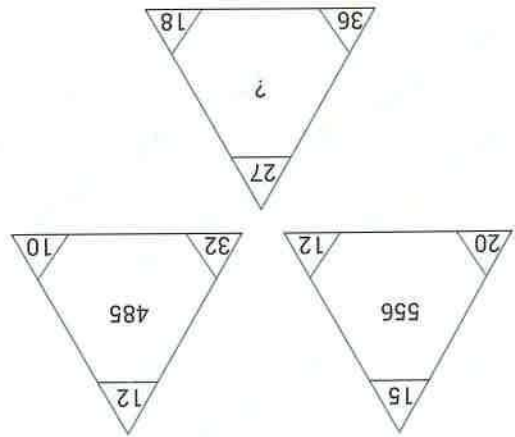
- A) -1 B) 0 C) 1 D) 2 E) 3

22.

3	3	4	5
4	2	6	2
5	3	7	8
6	2	3	?

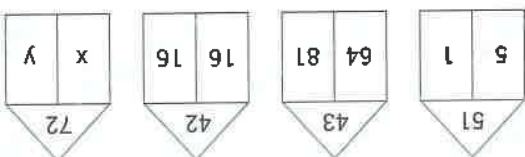
- A) 5 B) 6 C) 7 D) 8 E) 9

23.



- A) 392 B) 966 C) 389 D) 459 E) 999

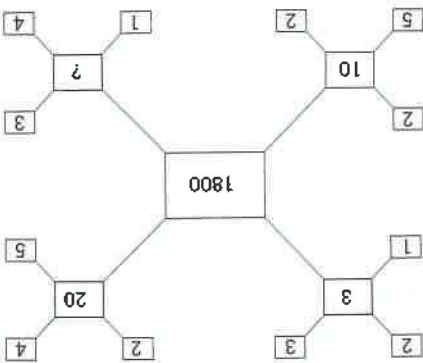
24.



$\Rightarrow x+y=?$

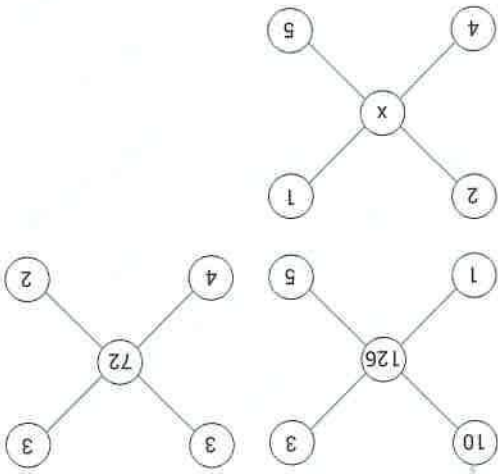
- A) 100 B) 128 C) 79 D) 92 E) 177

25.



- A) 4 B) 6 C) 8 D) 14 E) 17

26.



- A) 18 B) 21 C) 54 D) 105 E) 121

27.  $(x \star y) + (x \bullet y) - x^2 - xy$

$(x \bullet y) - (x \star y) = y^2 - xy$

$= 5 \bullet 3 = ?$

- A) 2 B) 5 C) 13 D) 21 E) 27

28. 35, 42, 73, 54, ?

- A) 93 B) 86 C) 27 D) 13 E) 11

G	A	L	A	T	A
3	3	2	3	2	3

$\Rightarrow$  EĞİTİM = ?

- A) 231213 B) 431213 C) 332224 D) 442224 E) 1432124

30.  $\left. \begin{matrix} FEBA \\ CAEB \\ ABCD \\ DFDF \\ BEAC \end{matrix} \right\} \Rightarrow \left. \begin{matrix} 7532 \\ 4573 \\ 1414 \\ 2357 \\ 3721 \end{matrix} \right\} \Rightarrow CAEB = ?$

A) 7532 B) 4573 C) 1414 D) 2357 E) 3721

A kümesinden B kümesine tanımlanan yukarıdaki f, g, h bağıntılarından hangileri A dan B ye tanımlı bir fonksiyondur ?

Which of the above relations f, g, h defined from set A to set B is a function defined from A to B?

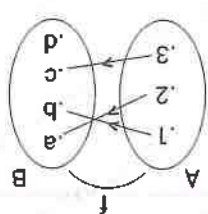
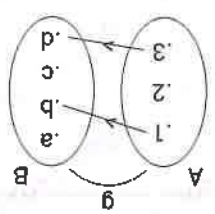
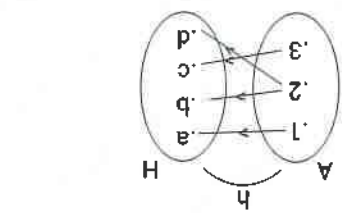
- A) f B) h C) f, g D) f, h E) f, g, h

2. f: A → B ve A = {-1, 3, 4} olmak üzere f(x) = 3x - 1 olduğuna göre f(A) kümesi hangisidir ?  
which set is f(A)?

- A) {-4, 10, 3} B) {-4, 8, 11} C) {-4, 8, 13} D) {4, 8, 11} E) {4, 8, 13}

3.  $f(x) = \frac{2x+6}{2x-3}$  fonksiyonu sabit fonksiyon olduğuna göre, a kaçtır ?  
since the function is a constant function, what is a ?

- A) 1 B) 2 C) 0 D) -2 E) -4





4.  $f(x)$  doğrusal fonksiyondur.

$f(x)$  is a linear function.

$$f(x) + f(x+2) = 4x + 2$$

olduğuna göre,  $f(x)$  hangisidir ?

accordingly, which of the options is  $f(x)$

- A)  $2x - 3$  B)  $2x - 1$  C)  $2x + 1$

- D)  $2x + 3$  E)  $2x + 5$

5.

$f$  is an identity function.

$f$  is an identity function.

$$f(2x+5) + f(3x-1) = f(4x) + 10$$

esitliğini sağlayan  $x$  değerini kaçtır ?  
what is the  $x$  value that provides the equality ?

- A) 4 B) 5 C) 6 D) 7 E) 8

6.

$f: \mathbb{R} \rightarrow \mathbb{R}$

$$f(x) = \begin{cases} 3x+1, & x < 3 \\ x^2-3, & x \geq 3 \end{cases}$$

$$\Rightarrow f(5) - f(-3) + f(-2) = ?$$

- A) 10 B) 15 C) 20 D) 25 E) 30

7.

$f: \mathbb{R} \rightarrow \mathbb{R}$

$$f(x) = 7^{x-2}$$

$$\frac{f(3m-2)}{f(2m+1)} = 1 \Rightarrow m = ?$$

- A) 3 B)  $\frac{3}{1}$  C) -1 D) -2 E) -3

8.

$f: \mathbb{R} - \{0\} \rightarrow \mathbb{R}$

$$f\left(\frac{1}{x}\right) = ? \Rightarrow f\left(\frac{x}{1}\right) = ?$$

- A)  $x$  B)  $x+2$  C)  $x+3$

D)  $\frac{1}{x} + 2$

E)  $\frac{x}{1} + 3$

9.

$$f(x) = 3x - 2 \Rightarrow f^{-1}(x) = ?$$

- A)  $3x+2$  B)  $2-3x$

D)  $\frac{x}{3} - 2$

E)  $\frac{3x-2}{5}$

10.

$f: \mathbb{R} - \{4\} \rightarrow \mathbb{R} - \{2\}$

$$f(a) = \frac{2a-4}{2a-3} \Rightarrow f^{-1}(a) = ?$$

A)  $\frac{2a-3}{a+4}$

B)  $\frac{a-2}{a-3}$

D)  $\frac{a-2}{4a+3}$

E)  $\frac{4a-3}{a-2}$

C)  $\frac{4a-3}{a}$

11.  $f: [3, +\infty) \rightarrow [-4, +\infty)$   
 $f(x) = x^2 - 6x + 5 = f^{-1}(5) = ?$

- A) 4    B) 5    C) 6    D) 7    E) 8

15.  $f = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 1 \\ 3 & 1 & 2 \end{pmatrix}$  ve  $g = \begin{pmatrix} 1 & 2 & 3 \\ 3 & 1 & 2 \end{pmatrix}$   
 $= (f \circ g)^{-1}(1) - (f^{-1} \circ g)(2) = ?$

- A) -2    B) -1    C) 0    D) 1    E) 2

12.  $f(x) = 2x - 1$ ,  $g(x) = 2x + 3$   
 $= (f \circ g)(x) = ?$

- A)  $2x + 5$     B)  $4x - 5$     C)  $4x + 5$     D)  $4x - 3$     E)  $2x - 5$

13.  $f(3x-1) = x^2$ ,  $g(x-1) = x+4 \Rightarrow (g \circ f)(8) = ?$

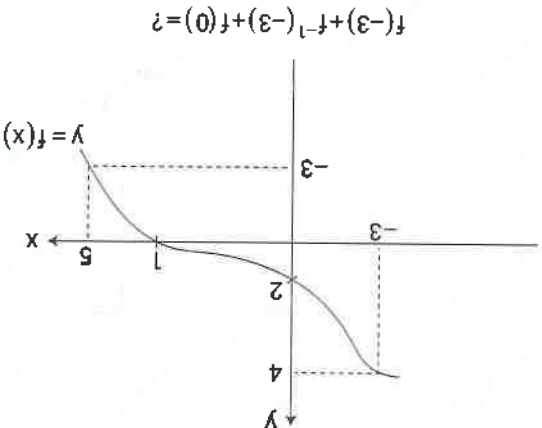
- A) 12    B) 13    C) 14    D) 15    E) 16

14.  $f(x) = 2^{2x-1} + 3 \Rightarrow f^{-1}(19) = ?$

- A)  $\frac{1}{2}$     B)  $\frac{1}{3}$     C)  $\frac{3}{2}$     D)  $\frac{2}{5}$     E)  $\frac{3}{4}$

17.  $\frac{1}{a} + \frac{1}{b} = \frac{1}{1}$ ,  $\frac{1}{a} + \frac{1}{c} = \frac{3}{2}$ ,  $\frac{1}{b} + \frac{1}{c} = \frac{4}{1}$ ,  $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = ?$

- A)  $\frac{24}{13}$     B)  $\frac{24}{11}$     C)  $\frac{12}{11}$     D)  $\frac{12}{13}$     E)  $\frac{6}{11}$



16.

$$18. \frac{7}{1} \leq a < \frac{2}{1} \quad \frac{5}{1} \leq b < \frac{3}{1}$$

olduğuna göre,  $\frac{a}{1} + \frac{b}{1}$  toplamının alabileceği en büyük tam sayı değeri ile en küçük tam sayı değerinin toplamı kaçtır?

What is the sum of the highest integer value and the smallest integer value that the  $\frac{1}{1} + \frac{a}{1}$  sum can take?

- A) 13 B) 14 C) 15 D) 16 E) 18

$$19. A, B, C, \in Z^+ \quad \begin{cases} A = 2^4 \cdot 3^3 \cdot 5^2 \\ B = 2^7 \cdot 3^5 \\ C = 2^2 \cdot 3^4 \cdot 5^3 \end{cases} = \frac{EKOK(A, B, C)}{EBOB(A, B, C)}$$

- A)  $2^5 \cdot 2$  B)  $2 \cdot 3^2 \cdot 5^2$  C)  $2^2 \cdot 3 \cdot 5^3$  D)  $2^5 \cdot 3^2 \cdot 5^3$  E)  $3 \cdot 5^3$

$$23. ||x - 2| - 4| = 2 \Rightarrow \sum x = ?$$

- A) 8 B) 10 C) 11 D) 12 E) 16

$$22. \frac{\sqrt{24 - \sqrt{20} - \sqrt{18} + \sqrt{15}}}{\sqrt{32 - \sqrt{24}}} = ?$$

- A)  $\frac{\sqrt{6 - \sqrt{5}}}{2}$  B)  $\frac{\sqrt{3 + \sqrt{2}}}{4}$  C)  $\frac{\sqrt{3 + \sqrt{2}}}{2}$  D)  $\frac{\sqrt{3 - \sqrt{2}}}{2}$  E)  $\frac{\sqrt{12 - \sqrt{10}}}{4}$

$$21. x, y, z \in R^+$$

$$x \cdot y + x \cdot z = 75$$

$$\frac{y+z}{x} = \frac{3}{4} \Rightarrow x+y+z = ?$$

- A) 15 B) 20 C) 25 D)  $\frac{2}{25}$  E)  $\frac{2}{35}$

$$20. x, m, n, k \in Z^+$$

$$x = 3m + 2 = 5n + 2 = 8k + 2$$

esitliğini sağlayan üç basamaklı en büyük x doğal sayısı kaçtır?  
What is the highest x natural number with three digits to ensure equality?

- A) 958 B) 960 C) 962 D) 978 E) 982

$$24. x, y, z \in Z$$

$$12 < 2^x < 25$$

$$32 < 3^y < 100$$

$$\Rightarrow x + y + z = ?$$

$$16 < 5^z < 40$$

- A) 7 B) 8 C) 9 D) 10 E) 11

25.  $x+y+z=12$   
 $xy+xz+yz=28$   
 $=x^2+y^2+z^2=?$

- A) 80 B) 84 C) 88 D) 92 E) 96

28. A, B ve C birer küme olmak üzere,  
 1.  $A \cup B = A \cup C = B = C$  dir.  
 2.  $A \cap B = \emptyset = A \setminus B = A$  dir.  
 3.  $A \cup B = A = B \setminus A = \emptyset$  dir.  
 önermelerinden hangileri her zaman doğrudur?  
 which of the propositions are always true?

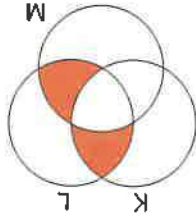
- A) I B) II C) III  
 D) I ve II E) II ve III

26. Bir A kümesinin 3 ten az elemanlı alt kümelerinin sayısı 29 ise A kaç elemanlıdır?

If the number of subsets of an A set with less than 3 elements is 29, how many elements does A have?

- A) 10 B) 8 C) 7 D) 12 E) 15

29.



Taralı bölge hangisine eşittir?  
 Shaded area = ?

- A)  $K \cap L \cap M$   
 B)  $(K \cap L) \cup M$   
 C)  $(M \cap L) \cup K$   
 D)  $(K \cap M) \cup (K \cap L \cap M)$   
 E)  $(L \cap (K \cup M)) \cup (K \cap L \cap M)$

kapalı aralık için  $(X \cup Y) \cap Z$  kümesinin eleman sayısı kaçtır?  
 What is the number of elements of the set?

(Z, Tam sayılar kümesidir)  
 (Z is a set of integers)

- A) 4 B) 5 C) 6 D) 7 E) 8

What is the minimum number of elements of set  $A \cup B$  kaçtır?

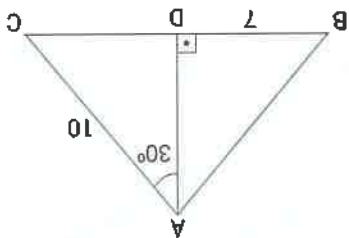
olduğuna göre,  $A \cup B$  kümesinin eleman sayısı en az

$$3 \cdot s(A-B) = 4 \cdot (A \cap B) = 5 \cdot s(B-A)$$

30.  $A \neq \emptyset$ ,  $B \neq \emptyset$

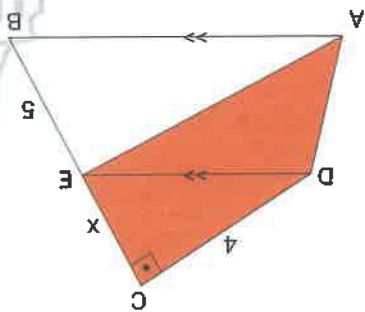
- A) 12 B) 27 C) 35 D) 47 E) 60

1.  $[AD] \perp [BC]$   
 $m(\widehat{DAC}) = 30^\circ$   
 $|BD| = 7$   
 $|AC| = 10$   
 $A(\widehat{ABC}) = ?$



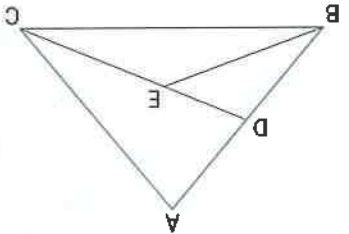
A)  $30\sqrt{3}$  B)  $24\sqrt{3}$  C)  $20\sqrt{3}$  D) 35 E) 70

2.  $[DE] \parallel [AB]$   
 $|CD| = 4$   
 $|EB| = 5$   
 $A(\widehat{AEC}) = 28$   
 $x = ?$



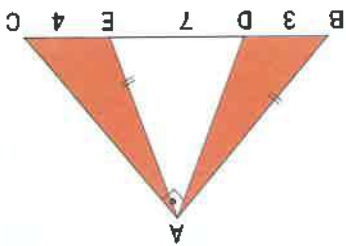
A) 7 B) 8 C) 9 D) 10 E) 14

3.  $\frac{|AD|}{|AB|} = 5$   
 $\frac{|DE|}{|DC|} = \frac{1}{4}$   
 $\frac{A(\widehat{BEC})}{A(\widehat{ADC})} = ?$



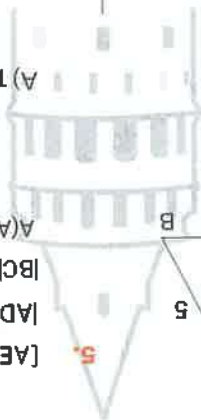
A) 3 B) 4 C) 5 D) 6 E) 7

4. ABC bir üçgen  
 $[DA] \perp [AC]$   
 $|AB| = |AE|$   
 $|BD| = 3$   
 $|EC| = 4$   
 $|DE| = 7$   
 Taralı alanlar toplamı kaçtır?  
 what is the sum of the shaded areas?



A)  $10\sqrt{2}$  B)  $11\sqrt{2}$  C)  $\frac{21\sqrt{2}}{2}$  D)  $20\sqrt{2}$  E)  $14\sqrt{2}$

5.  $[AE] \perp [BC]$   
 $|AD| = 4$   
 $|BC| = 6\sqrt{3}$   
 $A(\widehat{ADC}) = ?$



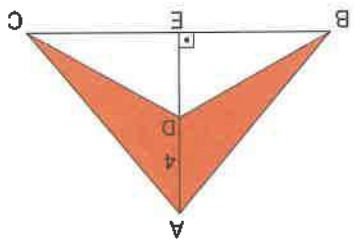
A)  $12\sqrt{3}$

D)  $24\sqrt{3}$

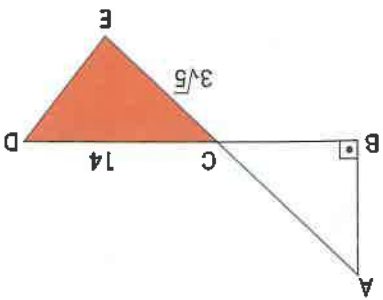
B)  $13\sqrt{3}$

E)  $25\sqrt{3}$

C)  $14\sqrt{3}$

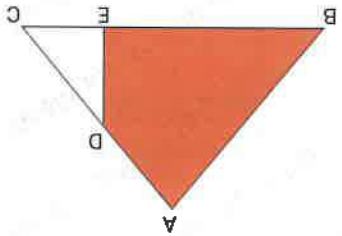


6. A,C,E noktalar doğrusal  
 $[AB] \perp [BD]$   
 $|AC| = \sqrt{5}|AB|$   
 $|CE| = 3\sqrt{5}$   
 $|CD| = 14$   
 Taralı alan = ?  
 Shaded area = ?



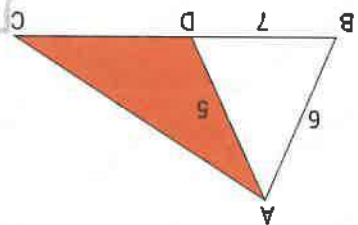
A) 17 B) 19 C) 20 D) 21 E) 24

9.  $|DC| = 2|AD|$   
 $|BC| = 3|EC|$   
 $A(\widehat{ABC}) = 18$   
 $A(\widehat{ABED}) = ?$



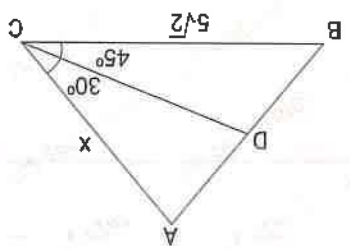
- A) 12 B) 13 C) 14 D) 15 E) 16

8. ABC bir üçgen  
 $|AD| = 5$   
 $|AB| = 6$   
 $|BD| = 7$   
 $|DC| = 2|BD|$   
 $A(\widehat{ADC}) = ?$



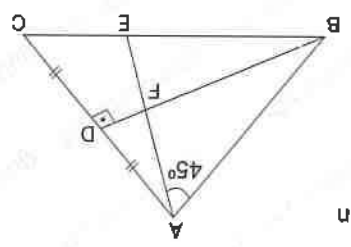
- A) 5/6 B) 6/6 C) 8/6 D) 10/6 E) 12/6

7. ABC bir üçgen  
 $m(\widehat{ACD}) = 30^\circ$   
 $m(\widehat{DCB}) = 45^\circ$   
 $|BC| = 5\sqrt{2}$   
 $2A(\widehat{BDC}) = 3A(\widehat{ADC})$   
 $x = ?$



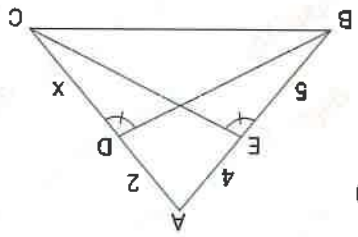
- A) 1/10 B) 3/11 C) 4 D) 3/13 E) 3/20

12. ABC; eşkenar üçgen  
 eşkenar üçgen  
 $|AD| = |DC|$   
 $m(\widehat{BAE}) = 45^\circ$   
 $\frac{|BF|}{|BE|} = ?$



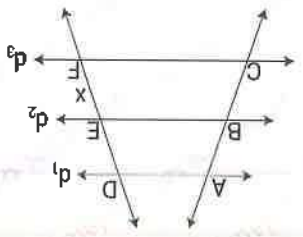
- A) 1 B) 2 C) 3 D) 4 E) 5

11.  $m(\widehat{BEC}) = m(\widehat{BDC})$   
 $|AD| = 2$   
 $|AE| = 4$   
 $|BE| = 5$   
 $|CD| = x = ?$



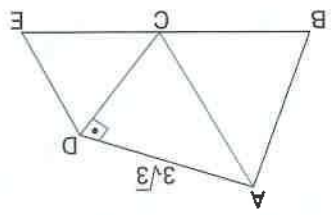
- A) 12 B) 14 C) 15 D) 16 E) 18

10.  $d_1 // d_2 // d_3$   
 $|AB| = 4|BC|$   
 $|DF| = 25$   
 $|EF| = x = ?$



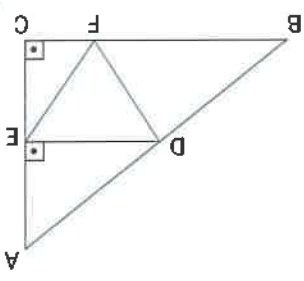
- A) 5 B) 10 C) 15 D) 20 E) 24

13. ABC; eşkenar üçgen  
 CDE; eşkenar üçgen  
 equilateral triangle  
 equilateral triangle  
 $|AD| = 3\sqrt{3}$   
 $[AD] \perp [CD]$   
 $\hat{C}(ABED) = ?$



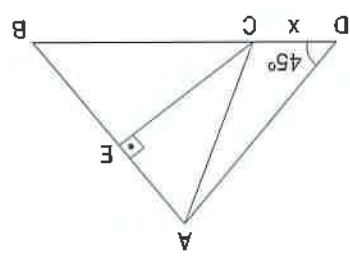
- A)  $18 + 3\sqrt{3}$  B)  $18 - 3\sqrt{3}$  C)  $3\sqrt{3} + 9$  D)  $3\sqrt{3} + 27$  E)  $9 - 3\sqrt{3}$

14.  $[AC] \perp [BC]$   
 $[AC] \perp [DE]$   
 DEF; eşkenar üçgen  
 equilateral triangle  
 $|DE| = 2\sqrt{3}$   
 $|BD| = 6$   
 $|BC| = ?$



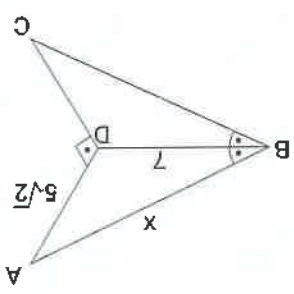
- A)  $3\sqrt{3}$  B)  $4\sqrt{3}$  C)  $5\sqrt{3}$  D)  $6\sqrt{3}$  E)  $7\sqrt{3}$

15.  $|AB| = |CB|$   
 $[AB] \perp [CE]$   
 $m(\widehat{ADB}) = 45^\circ$   
 $|AE| = 4$   
 $|CE| = 6$   
 $x = ?$



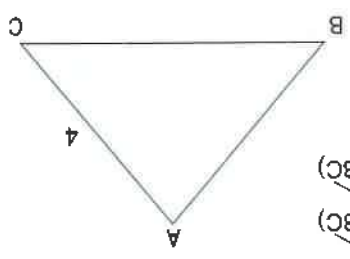
- A) 1 B) 2 C) 3 D) 4 E) 5

16.  $m(\widehat{ABD}) = m(\widehat{DBC})$   
 $|AB| = |BC| = x$   
 $[AD] \perp [DC]$   
 $|AD| = 5\sqrt{2}$   
 $|BD| = 7$   
 $x = ?$



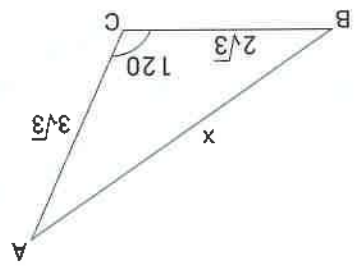
- A) 10 B) 11 C) 12 D) 13 E) 14

17.  $m(\widehat{BAC}) = 3 m(\widehat{ABC})$   
 $m(\widehat{ACB}) = 2 m(\widehat{ABC})$   
 $|AC| = 4$   
 $\hat{A}(\widehat{ABC}) = ?$



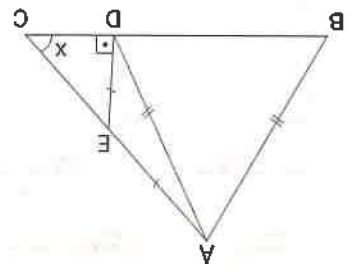
- A) 5 B) 5√3 C) 6 D) 10 E) 8√3

18.  $m(\widehat{ACB}) = 120^\circ$   
 $|BC| = 2\sqrt{3}$   
 $|AC| = 3\sqrt{3}$   
 $x = ?$



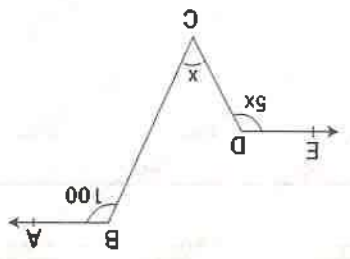
- A)  $\sqrt{40}$  B)  $\sqrt{57}$  C)  $\sqrt{59}$  D)  $\sqrt{65}$  E)  $\sqrt{67}$

19. ABC bir üçgen  
 $[ED] \perp [BC]$   
 $|AE| = |ED|$   
 $|AB| = |AD|$   
 $m(\widehat{BAD}) = 40^\circ$   
 $x = ?$

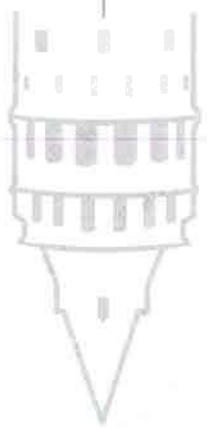


- A) 40
- B) 45
- C) 50
- D) 55
- E) 60

20.  $[BA] \parallel [ED]$   
 $m(\widehat{ABC}) = 100$   
 $m(\widehat{BCD}) = x$   
 $m(\widehat{CDE}) = 5x$   
 $x = ?$



- A) 20
- B) 30
- C) 40
- D) 50
- E) 60

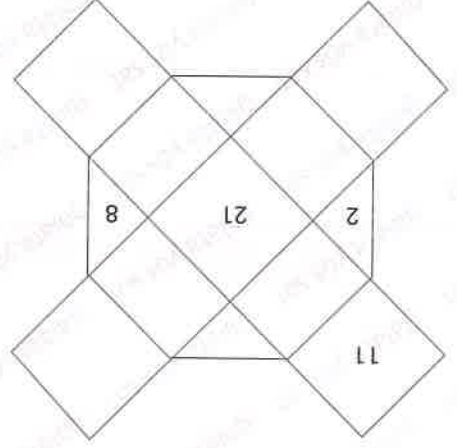






- A) 36 B) 21 C) 14 D) 8 E) 2

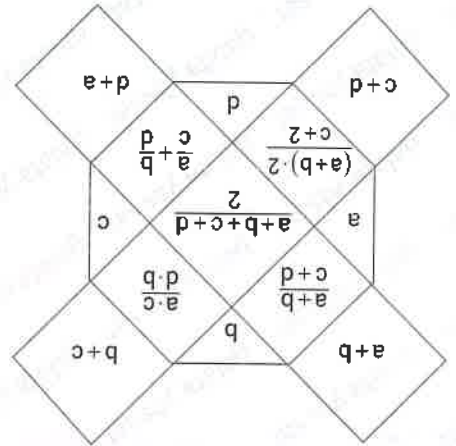
$$\frac{b+d}{a \cdot c} = ?$$



1.

Şekildeki a, b, c, d harfleriyile gösterilen dört tam sayıyı gösterdiği sayılar her soruda farklı olabilir. Ama bunlarla yapılan işlemler her soruda aynıdır. Aşağıdaki 1, 2, 3 soruları bu şekle göre çözülecektir.

a, b, c, d comprising four integers represented by the letter are arranged according to various operations. The numbers shown by the letters can be different in each question. But the operations to be done with them are the same in every question. The following 1, 2, 3 questions will be solved according to this figure.



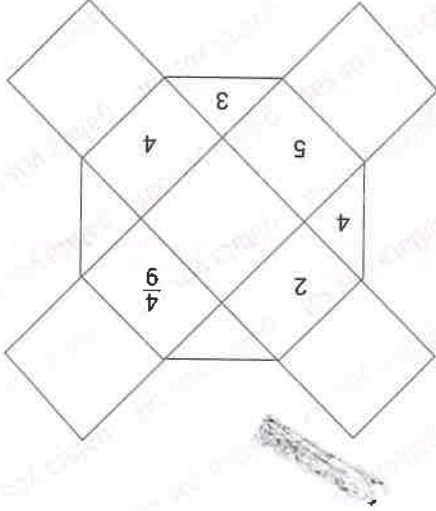
Özellik

Feature

2.

- A) 30 B) 45 C) 70 D) 95 E) 120

$$a \cdot b + c \cdot d = ?$$

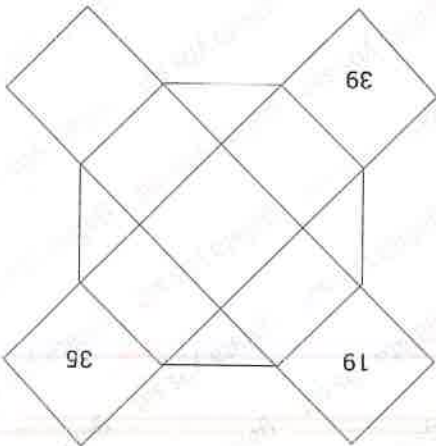


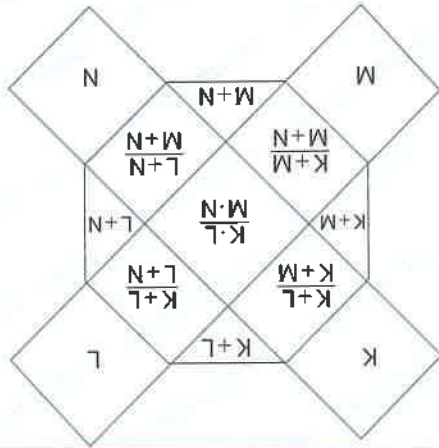
3.

- A) 418 B) 226 C) 112 D) 93 E) 51

$$a+c=30$$

$$= a \cdot d = ?$$

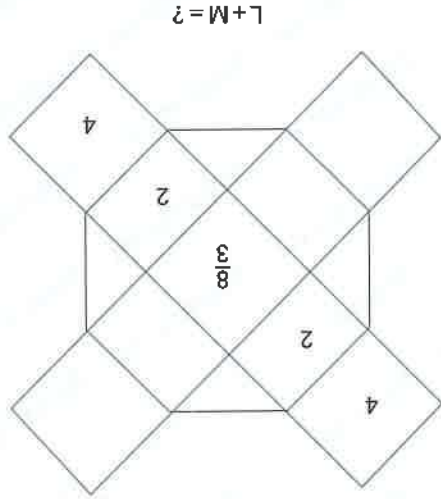




5.

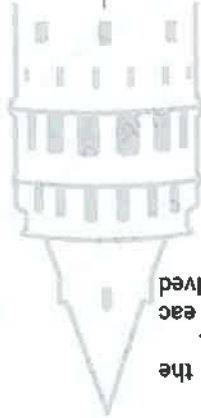
Şekildeki K, L, M, N harfleriyile gösterilen dört tam sayıyı içeren bazı işlemlere göre düzenlenmiştir. Harflerin gösterdiği sayılar her soruda farklı olabilir. Aşağıdaki 4, 5, 6 soruların bu şekle göre çözülecektir.

K, L, M, N comprising four integers represented by the letters are arranged according to various operations. The numbers shown by the letters can be different in each question. But the operations to be done with be solved according to this figure.

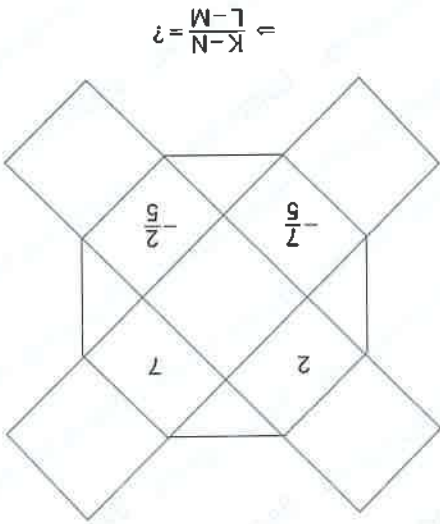


4.

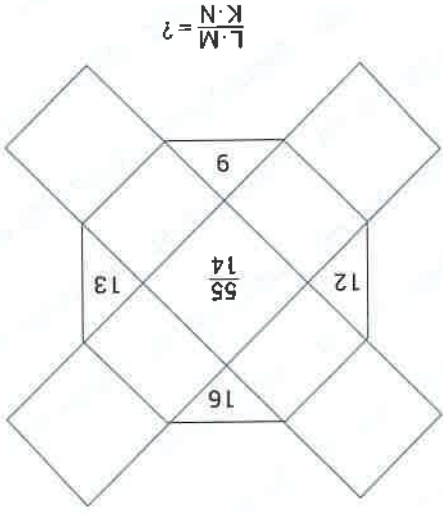
- A) 96 B) 64 C) 24 D) 22 E) 16



6.



- A)  $\frac{7}{12}$  B)  $\frac{7}{8}$  C)  $-\frac{5}{6}$  D)  $-\frac{5}{13}$  E)  $-\frac{4}{21}$



- A) 8,6 B) 7,7 C) 6,5 D) 4 E) 3

- A)  $\frac{5}{7}$  B)  $\frac{3}{7}$  C)  $\frac{7}{3}$  D)  $\frac{7}{5}$  E)  $\frac{21}{10}$

$$= k = ?$$

	$\frac{7}{9}$	
	K	11
16		
	$\frac{5}{6}$	

8.

- A) 78 B) 82 C) 86 D) 92 E) 96

$$= a \cdot d + b \cdot c = ?$$

	56	
30		7
		6

7.

Aşağıdaki 7 – 9 sorular tabloya göre çözünüz.  
Solve the 7 – 9 question below according to the table

c	$\frac{c}{d}$	c
a·c	$\frac{a \cdot b}{c \cdot d}$	$\frac{a+b}{2}$
b·d		$\frac{c+d}{2}$
a	$\frac{b}{a}$	b

Özellik Feature

9.

- A) 5 B) 8 C) 10 D) 11 E) 13

$$= a = ?$$

	$\frac{5}{4}$	
	$\frac{16}{11}$	50
	$\frac{5}{11}$	

YÖS

KTS 12

10.

Aşağıdaki 10 – 11 sorular bu tabloya göre çözünüz.  
Solve the 10–11 questions below according to the table.

c	c·d	d
a·c	$\frac{a+b}{c+d}$	b·d
a	a·b	b

Özellik Feature

- A) 21 B) 24 C) 27 D) 36 E) 45

$$= a \cdot b \cdot c \cdot d = ?$$

c	18	d
3		12
a	2	b



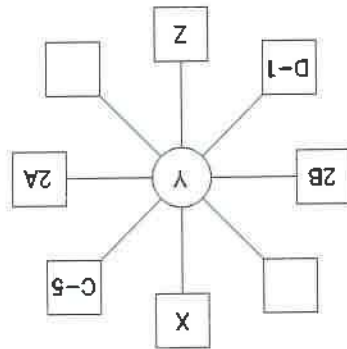
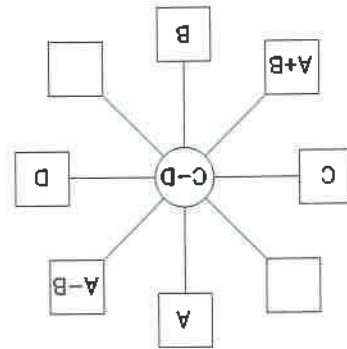
11.

	$4a^3$	
$a^3$	$\frac{3}{2}$	$12a^2$
	$3a^2$	

= a = ?

- A) 2    B) 4    C) 6    D) 8    E) 10

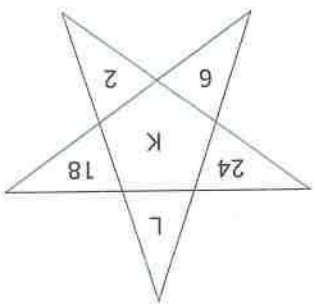
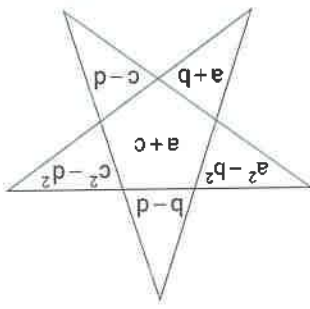
12.



X+Y+Z=?

- A) 5    B) 6    C) 7    D) 8    E) 9

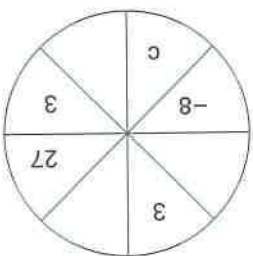
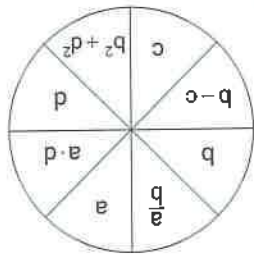
13.



= K+L=?

- A) 7    B) 8    C) 18    D) 28    E) 13

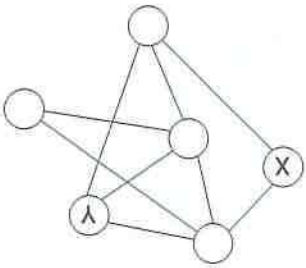
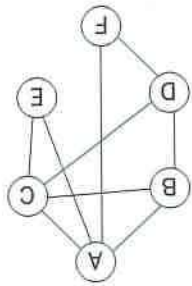
14.



= c = ?

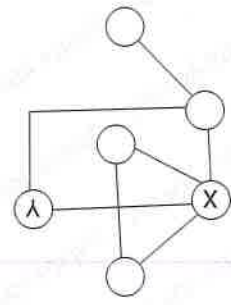
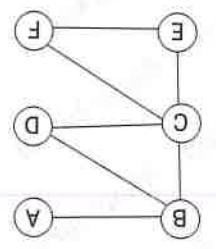
- A) 11    B) -11    C) 8    D) -8    E) 9

15.



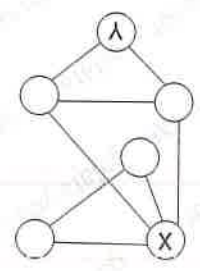
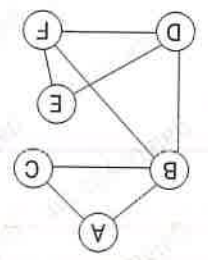
- A) A    F  
 B) E    F  
 C) F    B  
 D) F    D  
 E) D    F

- E) C E
- D) C D
- C) E D
- B) D E
- A) D C
- X / Y



17.

- E) B E
- D) D A
- C) B A
- B) D E
- A) B C
- X / Y



16.

16. İk. Şekildeki X ve Y yerine hangi harfler gelir ?  
Which letters replace X and Y in the second figure?

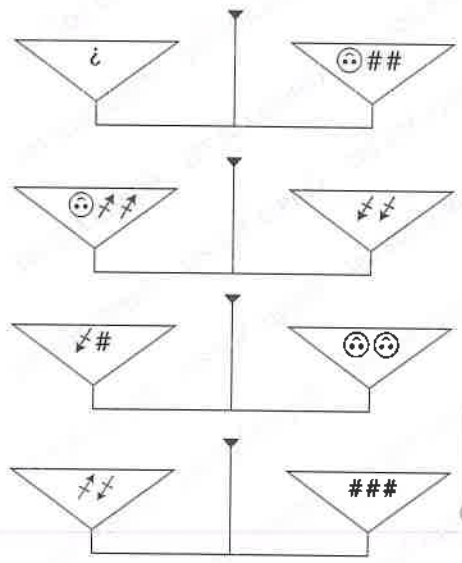
A) ↗ ↘

D) ↗ ↘ ↗ ↘

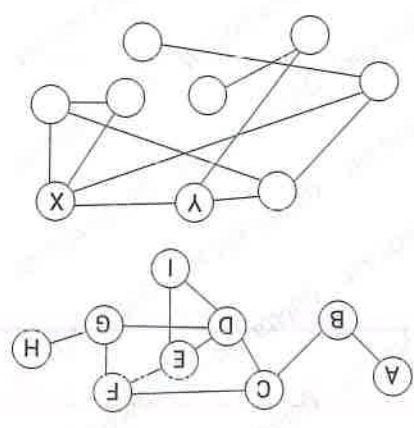
B) ↗ ↘ ↗ ↘

E) ↗ ↘ ↗ ↘

C) ↗ ↘ ↗ ↘



- E) F B
- D) C D
- C) D C
- B) D G
- A) E C
- X / Y



18.

21.

(+) <sup>2</sup>	K	L	M
K			75
L	147		
M		48	

= K+L+M=?

- A) 8√3 B) 7√3 C) 6√3 D) 121 E) 144

24.

4	2	5	9
5	11	3	7
6	1	3	13
1	3	1	3

- A) 10 B) 20 C) 25 D) 28 E) 30

K+L=?

23.

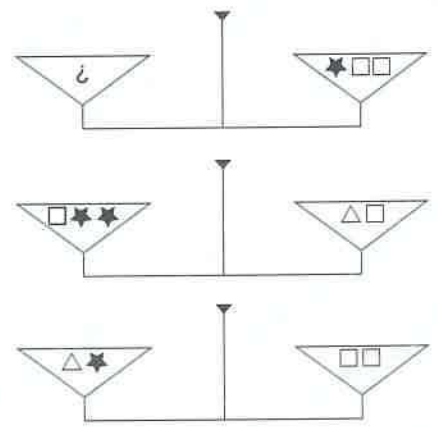


5	2	4	1
2	3	6	8
4	4	3	3
5	K	3	4
5	5	3	3
2	2	4	4

K=?

- A) 2 B) 3 C) 4 D) 5 E) 6

20.



- A) ★△ B) □□ C) ★★ D) □★ E) △△

22.

3	2	1	2
2	3	3	4
3	2	5	4
6	3	2	6
6	2	5	6
x	3	2	6

= x=?

- A) 2 B) 3 C) 5 D) 7 E) 9





1.  $a \square b = a^2 - b^2 \Rightarrow (3 \square 2) \square 4 = ?$

- A) 9 B) 12 C) 18 D) 25 E) 45

2.  $x \Delta y = x \cdot y - 3(y \Delta x) \Rightarrow 5 \Delta (-1) = ?$

- A) 7 B) 5 C)  $\frac{5}{1}$  D)  $-\frac{4}{5}$  E)  $-\frac{5}{6}$

3.  $x * y = \begin{cases} x + y, & x > y \\ x - y, & x \leq y \end{cases}$   
 $=(1+1) * (2+1) = ?$

- A) 0 B) -1 C) -2 D) -3 E) -5

4.  $\forall a \in \mathbb{R}$   
 $\triangle a = 1 - a$  biçiminde tanımlanıyor.

Buna göre (Accordingly)  $\triangle(x-2) = 3/\triangle - 1 \Rightarrow x = ?$

- A)  $-\frac{1}{2}$  B)  $-\frac{5}{2}$  C)  $\frac{5}{3}$  D)  $\frac{7}{5}$  E)  $\frac{7}{2}$

5.

*	a	b	c	d	e
a	b	c	d	e	a
b	c	d	e	a	b
c	d	e	a	b	c
d	e	a	b	c	d
e	a	b	c	d	e

$(x^{-1} * d)^{-1} = a^{-2}$   
 $\Rightarrow x = ?$

- A) a B) b C) c D) d E) e

6. Reel sayılar kümesinde  
 In the of real numbers

$a \Delta b = a + b - 3ab$  tanımlanmıştır.

Buna göre " $\Delta$ " işleminin etkisiz elemanı kaçtır?  
 Accordingly, what is the identity element of the  
 operation " $\Delta$ "

- A) 1 B) 2 C) 3 D) 4 E) 0

7.  $a \square b = a + b + 3 \Rightarrow 5^{-1} = ?$

( $5^{-1}$  : 5'in  $\square$  işlemine göre tersi)  
 inverse of the operation

- A) 11 B) 7 C) 0 D) -5 E) -11

8.  $x \circ y = x + y + 4xy$   
İşleminin yutan elemanı kaçtır?  
What is the null element of the operation?

- A)  $-\frac{1}{2}$  B)  $-\frac{4}{1}$  C)  $\frac{2}{1}$  D)  $\frac{4}{1}$  E)  $\frac{1}{8}$

12.  $\frac{x+1}{2} \Delta \frac{y-1}{3} = 4x^2 + 3xy + 1$   
 $= \frac{1}{2} \Delta 3 = ?$

- A) 125 B) 126 C) 127 D) 129 E) 130

9.  $a \circ b = \max\{a^b, a \cdot b\}$   
 $3 \circ 2 = ?$

- A) 3 B) 6 C) 8 D) 9 E) 12

13.  $x^{xy} \Delta y^{yx} = x^2 + y^2 - xy$   
 $\Rightarrow 64 \Delta 81 = ?$

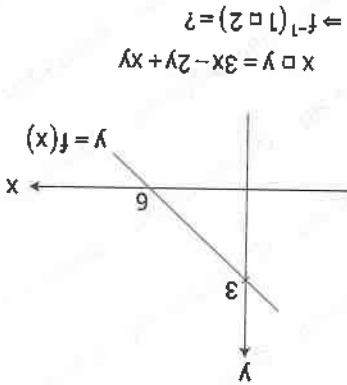
- A) 4 B) 5 C) 6 D) 7 E) 8

10.  $x^2 + y^2 = (x-y) \cdot (x^2 + xy + y^2) + 6$   
 $= 17 + 15 = ?$

- A) 8 B) 12 C) 24 D) 32 E) 36

11.  $x \circ y = \text{OKEK}(x, y)$   
 $a \Delta b = \text{OEBB}(a, b)$   
 $(16 \square 24) \Delta (36 \square 60) = ?$

- A) 6 B) 8 C) 12 D) 16 E) 20



$x \circ y = 3x - 2y + xy$   
 $\Rightarrow f^{-1}(1 \square 2) = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

15. 60 sayısının pozitif tam sayı bölenlerinin toplamı kaçtır? What is the sum of the positive integer divisors of the number 60?  
A) 160 B) 168 C) 180 D) 218 E) 240

19.  $\left[ \left( 3 + \frac{4}{1} \right) : \left( \frac{0,9}{0,9} \right) \right] + \frac{2}{1} = ?$

- A)  $\frac{4}{3}$  B)  $\frac{6}{5}$  C) 20 D) 2 E) 33

16.  $2x^2 + 7x - 15 : 2x^2 + 5x + 3 = ?$   
 $3x^2 + 14x - 5 : 6x^2 + 7x - 3 = ?$

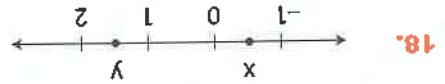
- A)  $\frac{2x-3}{x+1}$  B)  $\frac{2x+3}{x-1}$  C)  $\frac{3x-1}{x+5}$   
D)  $\frac{3x-3}{2x-3}$  E)  $\frac{3x-1}{x+1}$

17.  $\sqrt[3]{\frac{\sqrt{5x+1}}{2^{15x-9y}}} = 128 = y = ?$

- A) 7 B) 6 C) 5 D) 4 E) 2

21.  $\begin{cases} 6x - y + 1 = 9 \\ 6^{2x+y-5} = 4 \end{cases} \Rightarrow x = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5



$x, y \in \mathbb{R} \Rightarrow \frac{5 \left\| |x| - |y-x| \right\|}{|x - |y+x||} = ?$

- A) -5 B) 5y C) 5x D) 5 E) 10

22. Rakamları farklı üç basamaklı üç sayının aritmetik ortalaması 124 tür.

The arithmetic mean of the different three number, with different 3 digits, is 124

Buna göre, bu sayıların en büyüğü en çok kaç olabilir? Accordingly, how maximum possible can be the highest number?

- A) 163 B) 164 C) 165 D) 167 E) 169

23.  $s(B-A) = 6$

$s(B-A') = 4$

$s(A \cup B) = 13$

olduğuna göre,  $A \cap B$  kümesinin alt kümelerinin sayısı kaçtır?

what is the number of subsets of  $A \cap B$  set?

- A) 7 B) 8 C) 15 D) 16 E) 24

24.  $\beta = \{(x,y) : 2x + 3y = 10 \text{ ve } (x,y) \in R\}$  bağıntısı veriliyor.

Relation is given.

Buna göre  $\beta \cap \beta^{-1}$  eşleştiklerinden hangisidir?

Accordingly, which of the following is  $\beta \cap \beta^{-1}$ ?

A)  $\{(0,5), (5,0)\}$

B)  $\{(0,0)\}$

C)  $\{(2,7), (7,2)\}$

D)  $\{(2,2)\}$

E)  $\{(6,2), (2,6)\}$

A x B ifadesinin analitik düzlemde belirttiği bölgenin

alanı kaç  $br^2$  dir?

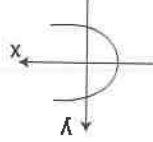
What is the area of the region indicated by the expression A x B on the analytical plane?

- A) 40 B) 60 C) 80 D) 100 E) 120

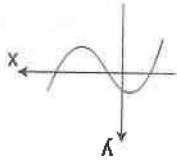
25.  $A = \{x : |x-7| \leq 4 \text{ ve } x \in R\}$

$B = \{x : |x+2| \leq 5 \text{ ve } x \in R\}$

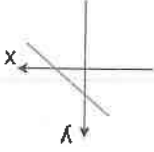
A)



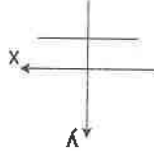
C)



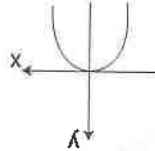
B)



D)



E)



27.

Aşağıda grafiği verilen reel sayılarda tanımlı bağıntılardan hangisi fonksiyon değildir?

Which of the relations defined in the real numbers given below is a function?

26.

$$f(2x-1) - 3x + 5 \text{ ve } f^{-1}(2m-5) = 11$$

$$\Leftrightarrow m = ?$$

- A) 5 B) 7 C) 9 D) 12 E) 14

28.  $a \in \mathbb{N}$  olmak üzere

$$f(a+1) = (a+1) f(a)$$

$$f(5) = 60 \Rightarrow f(2) = ?$$

- A) 5 B) 4 C) 3 D) 2 E) 1

29.  $f(x) = |x-8|$

$$g(x) = \frac{x}{x+1}$$

$$= (\log^{-1})(3) = ?$$

- A) 8 B) 7 C) 5 D) 3 E) 1

30.  $\mathbb{R}$  de tanımlı  $f$  ve  $g$  fonksiyonları için

For  $f$  and  $g$  functions defined in  $\mathbb{R}$

$$(f+g)(x) = x^2$$

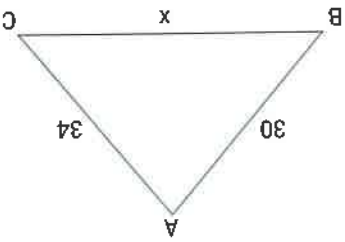
$$(f-g)(2x) = x$$

eşitlikleri veriliyor. Buna göre,  $f(4) \cdot g(4) = ?$

equations are given. Accordingly what is  $f(4) \cdot g(4)$

- A) 63 B) 60 C) 54 D) 51 E) 45

1.  $x \in \mathbb{Z}^+$   
 $m(\widehat{BAC}) > 90^\circ$   
 $|AC| = 34$   
 $|AB| = 30$   
 $x \max = ?$



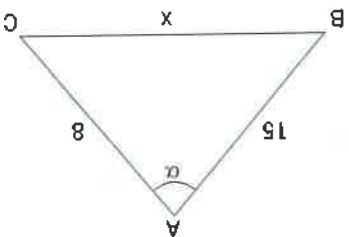
- A) 18 B) 17 C) 16 D) 15 E) 14

2.  $x$  in tanım aralığı nedir?  
 What is the domain of  $x$ ?

$$|AB| = 15$$

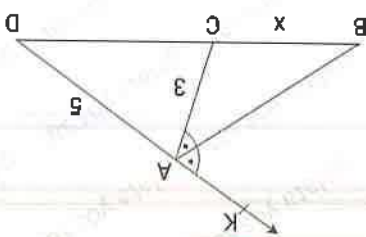
$$|AC| = 8$$

$$m(\widehat{BAC}) < 90^\circ$$



- A)  $[7, 23]$  B)  $(7, 23)$  C)  $[15, 23]$  D)  $(7, 17)$  E)  $(8, 15)$

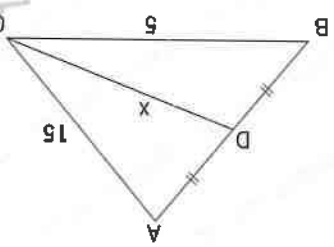
3.  $x \in Z$   
 K, A, D doğrusal  
 K, A, D lineer  
 $m(\widehat{KAB}) = m(\widehat{BAC})$   
 $|AC| = 3$   
 $|AD| = 5$   
 $|BC| = x$   
 $x \min = ?$



- A) 1 B) 2 C) 3 D) 4 E) 5

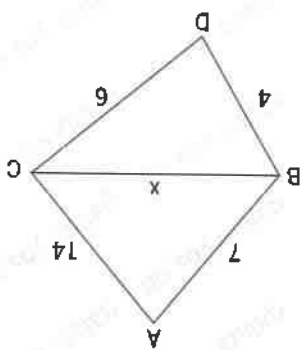
4. ABC bir üçgen

$|AD| = |DB|$   
 $|BC| = 5$   
 $|AC| = 15$   
 $x$ 'in kaç farklı tam sayı değeri vardır ?  
 How many different integer values does  $x$  have ?



- A) 1 B) 2 C) 3 D) 4 E) 5

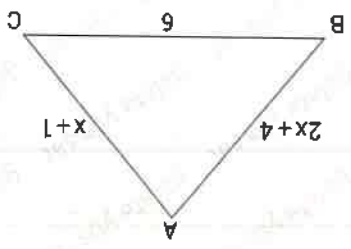
5.  $x \in Z$   
 $|BD| = 4$   
 $|DC| = 6$   
 $|AB| = 7$   
 $|AC| = 14$   
 $|BC| = x$   
 $x \max - x \min = ?$



- A) 1 B) 2 C) 3 D) 4 E) 5

6.

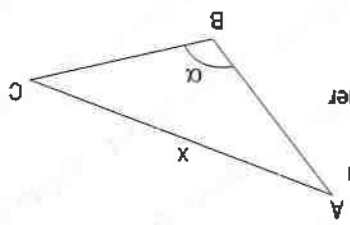
$\hat{C}(\widehat{ABC}) \in Z$   
 $|AC| = x + 1$   
 $|AB| = 2x + 4$   
 $|BC| = 6$   
 $\min(\widehat{ABC}) = ?$   
 $\min(\widehat{ABC})$  perimetre?



- A) 10 B) 11 C) 12 D) 13 E) 14

7.

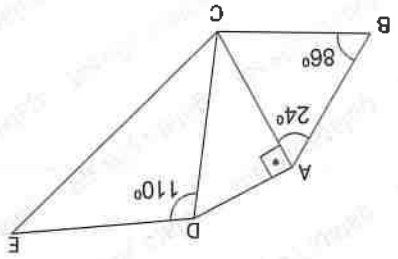
$|AB| = |BC| = 10$   
 $90^\circ < \alpha < 120^\circ$   
 $|AC| = x$  kaç farklı tam sayı değeri alır ?  
 How many different integer values does  $x$  have?



- A) 3 B) 4 C) 5 D) 6 E) 7

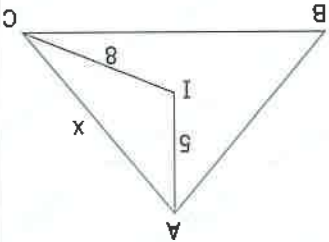
8.

$m(\widehat{ABC}) = 86^\circ$   
 $m(\widehat{BAC}) = 24^\circ$   
 $m(\widehat{CAD}) = 90^\circ$   
 $m(\widehat{CDE}) = 110^\circ$   
 en uzun kenar hangisidir  
 which is the longest edge ?

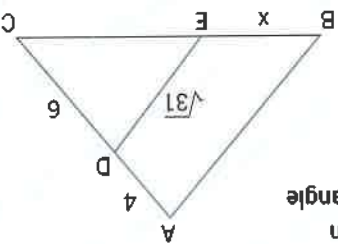


- A) |AC| B) |CD| C) |CE| D) |AB| E) |BE|

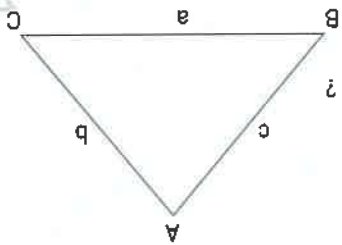
9. I : içteğet gemberinin merkezi  
Center of inner circle  
 $|AI| = 5$   
 $|IC| = 8$   
 $|AC| = x$  kaç farklı tamsayı  
değeri alır ?  
How many different integer  
values does  $x$  have?  
A) 6 B) 5 C) 4 D) 3 E) 2



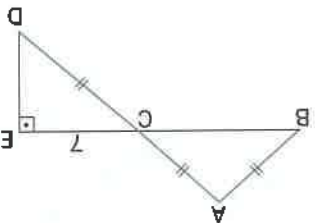
12. ABC: eşkenar üçgen  
ABC, equilateral triangle  
 $|AD| = 4$   
 $|DC| = 6$   
 $|DE| = \sqrt{31}$   
 $x = ?$   
A) 4 B) 5 C) 6 D) 7 E) 8



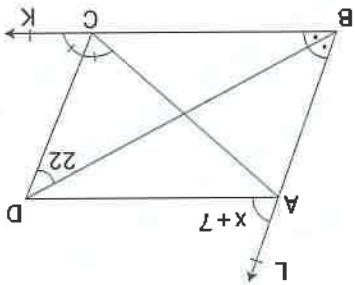
10.  $m(\widehat{A}) > m(\widehat{C}) > m(\widehat{B})$   
 $|BC| = a$   
 $|AC| = b$   
 $|AB| = c$   
 $|a-b| + |b-c| + |a-d| = ?$   
A)  $a-b$   
B)  $2a-2c$   
C)  $2a-2b$   
D)  $2a-c$   
E)  $a-c$



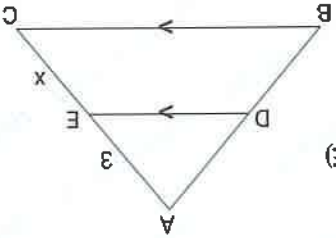
13. A,C,D doğrusal  
A,C,D linear  
 $|AB| = |AC| = |CD|$   
 $|CE| = 7$   
 $|BC| = ?$   
A) 7 B) 8 C) 10 D) 12 E) 14



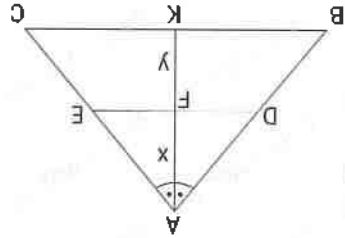
11.  $m(\widehat{LBD}) = m(\widehat{DBK})$   
 $m(\widehat{ACD}) = m(\widehat{DCK})$   
 $m(\widehat{BDC}) = 22$   
 $m(\widehat{LAD}) = x + 7$   
 $x = ?$   
A) 44 B) 50 C) 61 D) 64 E) 67



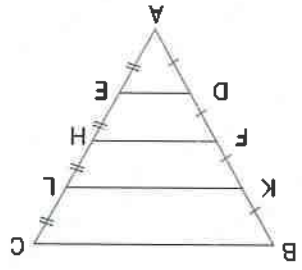
14.  $[DE] \parallel [BC]$   
 $9 A(BCED) = 7 A(ADE)$   
 $|AE| = 3$   
 $|EC| = x = ?$   
A) 1 B) 2 C) 3 D) 4 E) 5



17.  $\triangle ADE \sim \triangle ACB$   
 $m(\widehat{BAK}) = m(\widehat{KAC})$   
 $\frac{A(ADE)}{A(BDEC)} = \frac{21}{4}$   
 $\frac{x}{y-x} = ?$
- A)  $\frac{1}{2}$  B)  $\frac{3}{1}$  C)  $\frac{1}{4}$  D)  $\frac{5}{1}$  E) 1

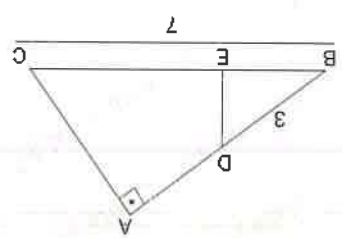


16.  $|AD| = |DF| = |FK| = |KB|$   
 $|AE| = |EH| = |HL| = |LC|$   
 $A(FHCB) = 24$   
 $A(FHED) = ?$
- A) 1 B) 2 C) 3 D) 4 F) 6

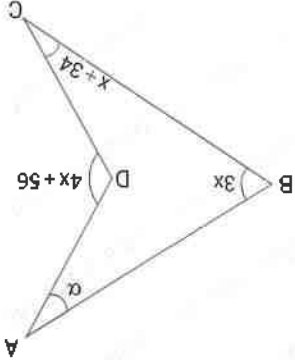


- A)  $\frac{49}{9}$  B)  $\frac{40}{9}$  C)  $\frac{49}{3}$  D)  $\frac{45}{7}$  E)  $\frac{7}{3}$

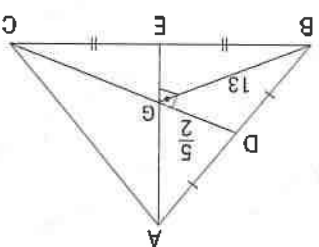
15.  $[AB] \perp [AC]$   
 $[DE] \perp [BC]$   
 $|BD| = 3$   
 $|BC| = 7$   
 $\frac{A(BDE)}{A(ADCE)} = ?$



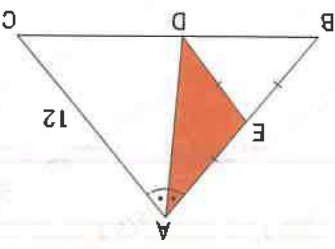
20.  $m(\widehat{ABC}) = 3x$   
 $m(\widehat{BCD}) = x + 34$   
 $m(\widehat{ADC}) = 4x + 56$   
 $m(\widehat{BAD}) = ?$
- A) 20 B) 22 C) 24 D) 26 E) 30



19. ABC bir üçgen  
 G ağırlık merkezi  
 $[AE] \perp [DC]$   
 $[AG] \perp [DC]$   
 $|AD| = |BD|$   
 $|BE| = |EC|$   
 $|DG| = \frac{2}{5}$   
 $|BG| = 13$   
 $|BC| = ?$
- A) 5 B) 10 C) 13 D)  $\sqrt{61}$  E)  $2\sqrt{61}$



18.  $m(\widehat{BAD}) = m(\widehat{DAC})$   
 $|AE| = |BE| = |ED|$   
 $|BD| = 6$   
 $|AC| = 12$   
 $A(\widehat{ABC}) = ?$
- A) 18 B) 36 C)  $9\sqrt{3}$  D)  $18\sqrt{3}$  E)  $20\sqrt{3}$

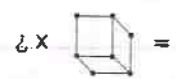
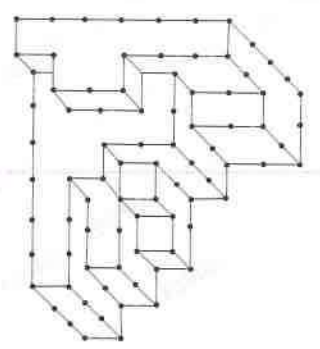






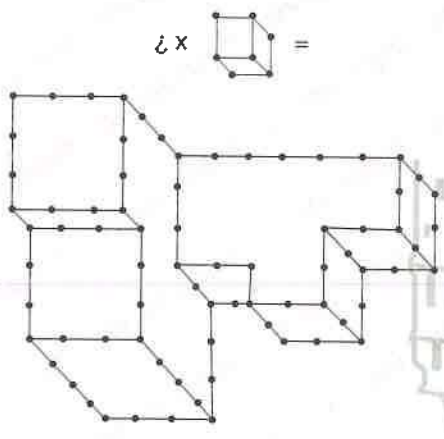
2.

- A) 75 B) 76 C) 77 D) 78 E) 79



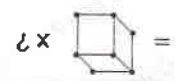
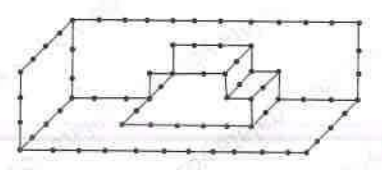
4.

- A) 117 B) 118 C) 119 D) 120 E) 121



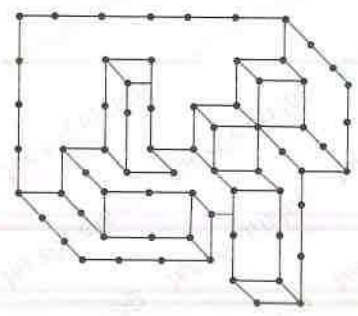
1.

- A) 114 B) 115 C) 116 D) 117 E) 118

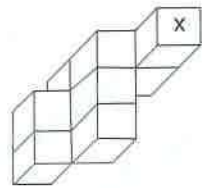


3.

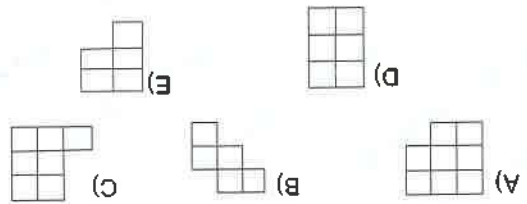
- A) 53 B) 54 C) 55 D) 56 E) 57



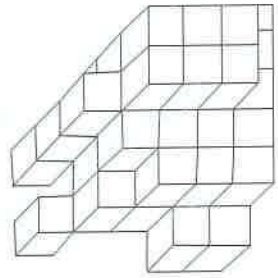
5.



X parçası çıkarılırsa şeklin sağdan görünüşü nasıldır ?  
If part x is removed, what is the view of the figure from  
the right ?



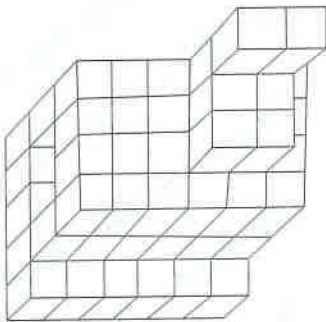
6.



Yukarıdaki şekilde kaç küp vardır ?  
How many cubes are there in the figure above?

- A) 45 B) 44 C) 43 D) 42 E) 41

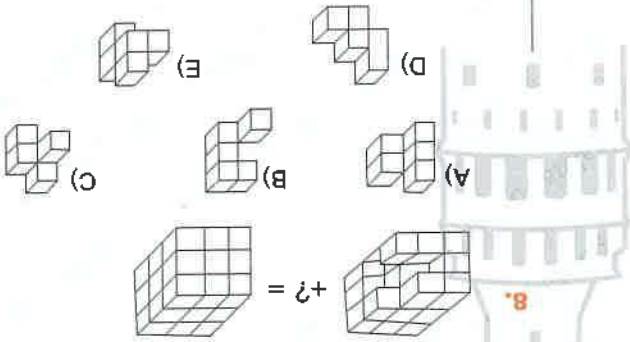
7.



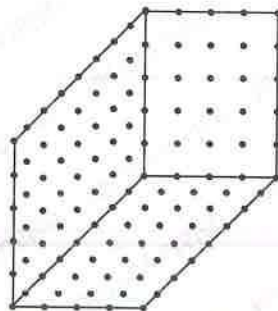
Yukarıdaki şekilde kaç küp vardır ?  
How many cubes are there in the figure above?

- A) 86 B) 84 C) 74 D) 71 E) 70

8.

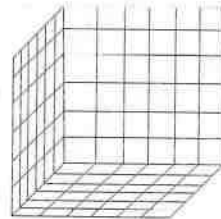


9.



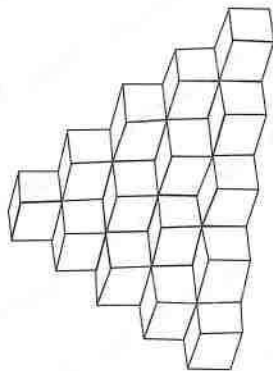
- A) 140 B) 150 C) 160 D) 170 E) 180

Özellik Feature



Aşağıdaki 10. ve 11. sorular yukarıdaki şekle göre çözülecektir.  
The 10th and 11th questions below will be solved according to the figure above.

10. Şekildeki küp birbine eş 216 küptür olmuştur. Olusan büyük bütün yüzeyleri kırmızıya boyanırsa. Hiç bir yüzeyi boyalı olmayan kag küp vardır ?  
A) 27 B) 45 C) 64 D) 81 E) 108



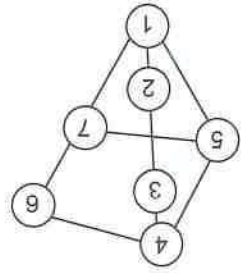
Şekildeki küplerin görünen yüzeyleri boyala ile boyanırsa boyalı olmayan kag küp vardır ?  
If the visible surfaces of the cubes in the figure are painted with paint, how many cubes are there not painted?  
A) 16 B) 18 C) 20 D) 22 E) 24

13. 35 ☆ 22 = 16  
17 ☆ 33 = 24  
15 ☆ 44 = 24  
12 ☆ 25 = ?  
A) 26 B) 22 C) 28 D) 12 E) 10

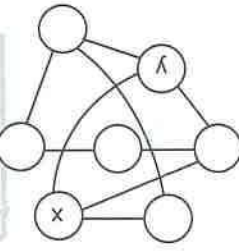
11. Üç yüzeyi boyalı olan kag küp vardır ?  
How many cubes are there on thee surfaces painted  
A) 6 B) 8 C) 10 D) 12 E) 14

12.

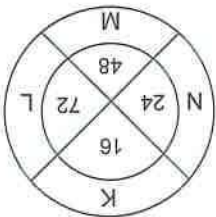
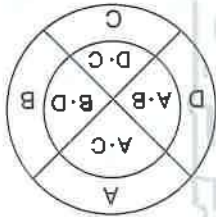
$$\begin{array}{r} \text{A)} 6 \\ \text{B)} 4 \\ \text{C)} 7 \\ \text{D)} 3 \\ \text{E)} 2 \end{array} \quad \begin{array}{r} \text{X} \\ \text{Y} \\ \hline 6 \\ 7 \\ 5 \\ 6 \\ 7 \end{array}$$



15.



17.



$$(K+N) \cdot (M+L) = ?$$

- A) 152 B) 154 C) 156 D) 158 E) 160

$$\text{E) } \frac{33x-121y}{11}$$

$$\text{C) } \frac{25x-15y}{5}$$

$$\text{A) } \frac{21x-49y}{7}$$

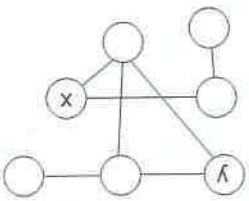
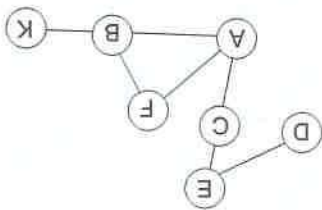
$$\text{D) } \frac{24x-64y}{8}$$

$$\text{B) } \frac{18x-36y}{6}$$

14. Hangisi bir özellikten dolayı farklıdır ?  
Which of the following is different due to a feature?

16.

- A)  $\frac{C}{A}$   
B)  $\frac{C}{F}$   
C)  $\frac{A}{F}$   
D)  $\frac{A}{B}$   
E)  $\frac{F}{C}$





19.

73
41

25
56

15
x

x = ?

- A) 25 B) 50 C) 55 D) 60 E) 75



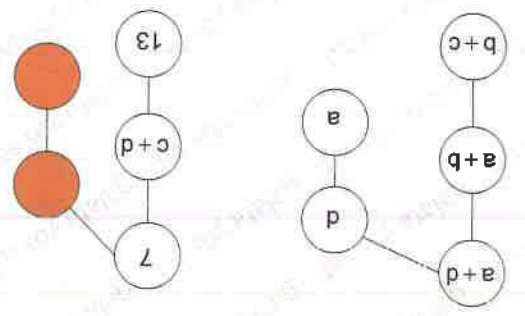
TAT  
DAT  
KAT  
CAT  
PAD

739  
830  
639  
039  
939

TAP = ?

- A) 936 B) 938 C) 939 D) 937 E) 930

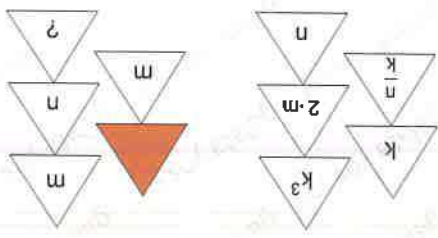
18.



a+b = ?

- A) 5 B) 10 C) 15 D) 20 E) 25

20.



n = ?

- A) 2 B) 4 C) 8 D) 12 E) 16

a	$\frac{a+c}{2}$	b
a-b	$\frac{a+c}{b+d}$	c-d
c	$\frac{b+d}{2}$	d

Aşağıdaki (22 - 23) sorular bu tabloya göre cevaplayınız ?  
Answer the following questions (22-23) according to this table.

24.

-	a	b
b	a	4
x	a	a
b	a	12

$$a^3 - b^3 = ?$$

- A) 125 B) 144 C) 176 D) 208 E) 216

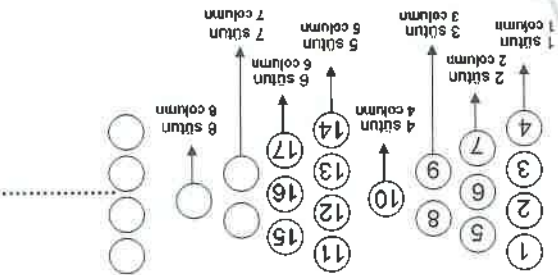
22.

a	8	b
56		90
c	9	d

$$ad + cb = ?$$

- A) 108 B) 136 C) 142 D) 156 E) 178

25.



2019 sayısı kaçinci sütundadır ?  
In which column is 2019 number ?

- A) 201 B) 204 C) 804 D) 807 E) 811

23.

$a^3$	$\frac{9}{5}$	$5 \cdot a$
$3a$		

$$a = ?$$

- A) 2 B) 3 C) 4 D) 5 E) 6

26.

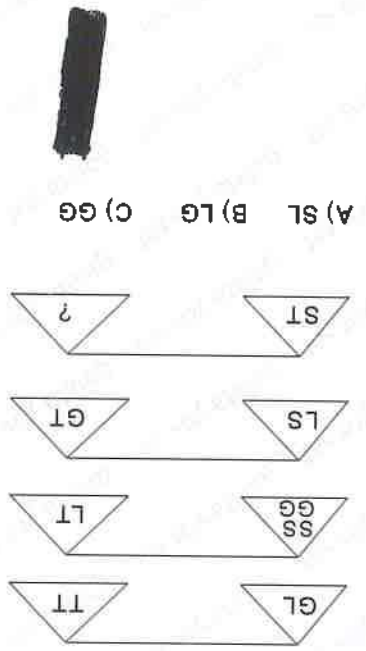
$$16 \cdot 21 = 4$$

$$43 \cdot 26 = 3$$

$$65 \cdot 13 = 1$$

$$22 \cdot 46 = ?$$

- A) 10 B) 8 C) 4 D) 2 E) 0



29.

- A) SL B) LG C) GG D) TT E) TG

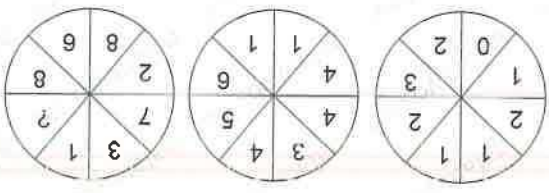
28. 31 34 46 70 ?

- A) 70 B) 82 C) 93 D) 104 E) 107

- A)  $\frac{3}{14}$  B)  $\frac{3}{17}$  C) 6 D)  $\frac{3}{7}$  E)  $\frac{6}{17}$

27.  $x \triangle y = 3x \star y$   
 $x \star y = \frac{x}{3} \blacksquare \frac{y}{3}$   
 $x \blacksquare y = \frac{1}{x} + y$   
 $(1 \triangle 3) \blacksquare (6 \star 9)$

Matematik Maths



30.

- A) 9 B) 8 C) 7 D) 5 E) 4

1. İSTANBULİSTANBULİSTANBUL...  
 1453. harf asğıdakilerden hangisidir ?  
 Which of the following is the 1453 rd letter ?

- A) N B) L C) B D) A E) S

2.  $3^{2x} = x \pmod{7}$   
 $x = ?$

- A) 2 B) 3 C) 4 D) 1 E) 0



3.  $\mathbb{Z}/7\mathbb{Z}$   $2x+5=1$

$\Rightarrow x=?$

- A) 1 B) 2 C) 3 D) 4 E) 5

6.  $f: \mathbb{R} \rightarrow \mathbb{R}$   
 $g: \mathbb{R} \rightarrow \mathbb{R}$

$$f(x) = \begin{cases} 2x+1, & x=0 \pmod{2} \\ 3x, & x=1 \pmod{1} \end{cases}$$

$$g(x) = \begin{cases} x, & x=0 \pmod{3} \\ 3x+1, & x=1 \pmod{3} \\ x-1, & x=2 \pmod{3} \end{cases}$$

$\Rightarrow (g \circ f)(6) = ?$

- A) 44 B) 42 C) 41 D) 40 E) 14

4.  $(1991)^{92} + (585)^{585} = x \pmod{5}$   
 $= x = ?$

- A) 1 B) 2 C) 3 D) 4 E) 10

7.  $m \in \mathbb{Z}, m > 1$   
 $73 = 3 \pmod{m}$   
 $107 = 2 \pmod{m}$   
 $\Rightarrow \sum m = ?$

- A) 48 B) 47 C) 45 D) 40 E) 20

5.  $\sqrt[9]{(1995)^{1995} - k}$   
 $\Rightarrow k = ?$

- A) 8 B) 7 C) 0 D) 1 E) 2

8.  $\frac{56}{1} + \frac{72}{1} + \frac{90}{1} = ?$

- A)  $\frac{7}{3}$  B)  $\frac{70}{3}$  C)  $\frac{11}{4}$  D)  $\frac{1001}{4}$  E)  $\frac{4}{7}$

9.  $\left(\frac{17}{3} - \frac{7}{2} + \frac{7}{5} + \frac{11}{5}\right) - \left(\frac{7}{5} - \frac{11}{6} - \frac{17}{14}\right) = ?$

- A) 1    B) 2    C) 3    D) -1    E) 0

12.  $a + b - c = 3$   
 $\frac{2^a \cdot 2^b}{2^c} = ?$

- A)  $2^{-3}$     B) 3    C) 8    D) 16    E) 32

10.  $\frac{a}{a-5} + 3a = \frac{a-5}{5} + 13$   
 $\Rightarrow a = ?$

- A) 1    B) 2    C) 3    D) 4    E) 6

13.  $x, y \in Z$   
 $10x - 2 = 5y + 3$   
 $\Rightarrow x \cdot y = ?$

- A) -6    B) -3    C) -2    D) 2    E) 6

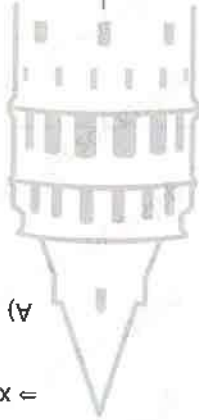
11.  $5x + ay = 10$   
 $10x - 6y = 20$   
 $n(S) = \infty$   
 $\Rightarrow a = ?$

- A) 5    B) 4    C) 3    D) -3    E) -2

14.  $2^x = a$   
 $3^x = b$

54<sup>x</sup> in a ve b türünden degeri nedir?  
 What is the value of 54<sup>x</sup> in term of a and b?

- A)  $a^3 \cdot b$     B)  $a \cdot b^3$     C)  $a^2 \cdot b^2$     D)  $a^2 \cdot b^3$     E)  $a^3 \cdot b^2$



15.  $m = 200$ ,  $n = 3150$ ,  $k = 5100$   
 $\Rightarrow ? < ? < ?$

- A)  $m < n < k$   
 B)  $k < n < m$   
 C)  $m < k < n$   
 D)  $k < m < n$   
 E)  $n < m < k$

18.  $A = \sqrt{5-2\sqrt{6}}$   
 $B = \sqrt{x-\sqrt{y}}$   
 $A = B$   
 $\Rightarrow x+y = ?$

- A) 1  
 B) 5  
 C) 4  
 D) 6  
 E) 10

16.  $\sqrt{1-\frac{1}{2}} \cdot \sqrt{1-\frac{1}{3}} \cdot \sqrt{1-\frac{1}{4}} \dots \sqrt{1-\frac{1}{36}} = ?$

- A)  $\frac{36}{1}$   
 B)  $\frac{24}{1}$   
 C)  $\frac{12}{1}$   
 D)  $\frac{4}{1}$   
 E)  $\frac{6}{1}$

19.  $\frac{\sqrt{42-\sqrt{42-\sqrt{42-\dots}}}}{\sqrt{6+\sqrt{6+\sqrt{6+\sqrt{6+\dots}}}}} = ?$

- A) 2  
 B) 3  
 C) 4  
 D) 6  
 E)  $\frac{3}{7}$

17.  $\square = x^{0,5}$   
 $\Rightarrow \frac{\square-2}{3} + \frac{\square+2}{3} = ?$

- A)  $3\sqrt{5}$   
 B)  $\sqrt{12}$   
 C)  $3\sqrt{6}$   
 D)  $3\sqrt{\frac{2}{6}}$   
 E)  $\frac{2}{\sqrt{6}}$

20.  $\frac{(n-2)^i + n^i}{(n+1)^i + (2-n)^i} = ?$

- A)  $\frac{5}{2}$   
 B)  $\frac{5}{1}$   
 C)  $\frac{3}{1}$   
 D)  $\frac{7}{3}$   
 E)  $\frac{7}{4}$

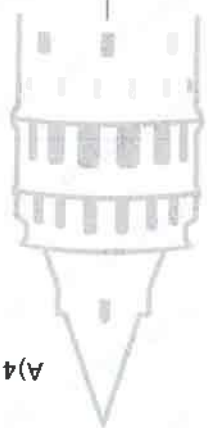


23.  $x, y \in \mathbb{N}$   
 $x^2 - y^2 = 23$   
 $\Rightarrow x \cdot y = ?$

- A) 100 B) 121 C) 132 D) 134 E) 144

26.  $a < b < 0 < c$   
 $|a-b| + |c| - |-a| - |b-c| = ?$

- A) 2b B) 2c C) a D) b E) a-b+c



22.  $x + \frac{1}{x} = 4$   
 $\Rightarrow x^2 + \frac{1}{x^2} = ?$

- A) 2 B) 4 C) 6 D) 12 E) 14

25.  $-4 \leq x < 2$   
 $\Rightarrow ? \leq x^2 < ?$

- A)  $4 < x^2 < 16$   
 B)  $0 < x^2 < 16$   
 C)  $0 < x^2 < 4$   
 D)  $0 \leq x^2 \leq 16$   
 E)  $\emptyset$

21.  $9x^2 - 3x - 2 = ?$

- A)  $\frac{x-1}{3x+1}$   
 B)  $\frac{3x-1}{x+1}$   
 C)  $\frac{3x+1}{x+1}$   
 D)  $\frac{3x+1}{x+1}$   
 E)  $\frac{3x-1}{x-1}$

24.  $x, y \in \mathbb{Z}$   
 $-2 \leq x \leq 2$   
 $-4 \leq y < 3$   
 $\max(3x - 2y) = ?$

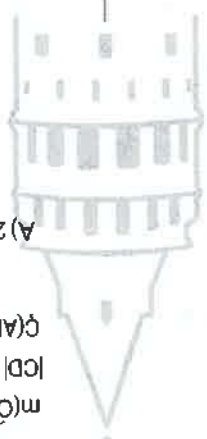
- A) 20 B) 18 C) 16 D) 15 E) 14

27.  $\beta = \{x : |x-3| \leq 4, x \in \mathbb{Z}\}$   
 $\Rightarrow n(\beta) = ?$   
 A) 7 B) 8 C) 9 D) 10 E) 11

30.  $a * b = (a+b)!$   
 $32 * 20 = \dots xyz 0000 \dots 0$   
 $\Rightarrow n = ?$   
 A) 11 B) 12 C) 13 D) 14 E) 15

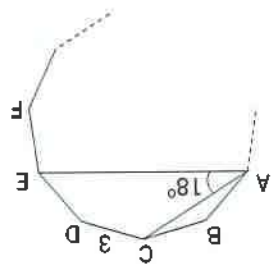
28.  $f(x,y) = x^2 - 2xy + y^2$   
 $\Rightarrow f(39, 29) = ?$   
 A) 10 B) 100 C) 240 D) 390 E) 399

29.  $f(x) = 3x^2 + 3x + 1$   
 $f(2) + f(3) + f(4) + \dots + f(9) = ?$   
 A) 9<sup>9</sup> B) 9! C) 990 D) 992 E) 1002



1.

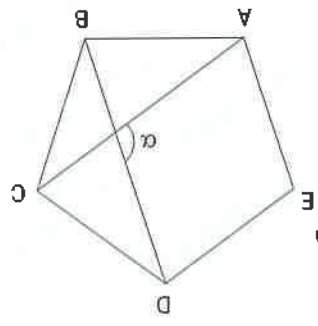
ABCD.....düzgün çokgen  
 $m(\widehat{CAE}) = 18^\circ$   
 $|CD| = 3 \text{ cm}$   
 $\hat{C}(ABCD \dots) = ?$



A) 20 B) 30 C) 40 D) 50 E) 60

2.

ABCDE düzgün beşgen  
 ABCDE regular pentagon  
 $\alpha = ?$



A) 36 B) 72 C) 108 D) 120 E) 135

Geometri Geometry

3. ABCDEF düzğün altigen  
 $|FH| = 3|HA| = 9$  cm  
 $|GA| = x = ?$

A) 6 B) 7 C) 8 D) 9 E) 10

4. ABCDE düzğün besgen  
 ABCDE regular pentagon  
 F, the center of pentagon  
 $|FH| = 4$  cm  
 $|AB| = 6$  cm  
 $A(ABCDE) = ?$

A) 55 B) 60 C) 55 D) 70 E) 75

5. ABCDEF düzğün altigen  
 ABCDEF regular hexagon  
 $[KL] \parallel [AB]$   
 $|KL| = 2|AK| = 2|BL|$   
 $\hat{C}(ABLK) = 30$  cm  
 $|CD| = 6$  cm  
 $|KC| = ?$

A)  $2\sqrt{11}$  B) 7 C)  $3\sqrt{10}$  D) 13 E)  $6\sqrt{7}$

6. ABCDEFKL düzğün sekizgen  
 ABCDEFKL regular octagon  
 $|FA| = 18 + 9\sqrt{2}$   
 $A(\triangle FB) = ?$

A)  $36 + 36\sqrt{2}$  B)  $36 + 18\sqrt{2}$  C)  $18 + 18\sqrt{2}$  D)  $81 + 81\sqrt{2}$  E)  $54 + 81\sqrt{2}$

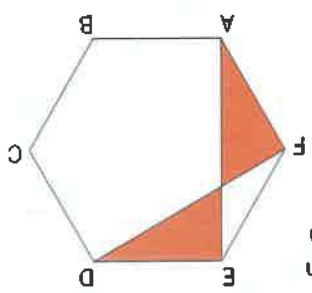
7. ABCDEF düzğün altigen  
 ABCDEF regular hexagon  
 $|BL| = 2$  cm  
 $|CL| = 3$  cm  
 $x = ?$

A) 2 B)  $\frac{2}{5}$  C) 3 D) 5 E) 6

8. ABCDE düzğün besgen  
 ABCDE regular pentagon  
 $|AK| = |CK|$   
 $m(\angle BLE) = \alpha = ?$

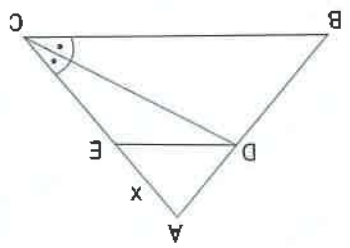
A) 36 B) 72 C) 90 D) 108 E) 120

3. ABCDEF düzün altigen  
 ABCDEF regular altigen  
 $|BC| = 6\sqrt{3}$   
 Taralı alan = ?  
 Shaded area = ?



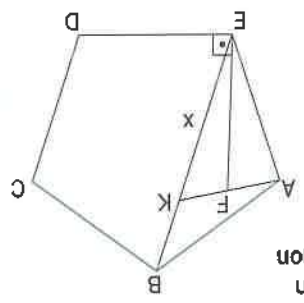
- A) 36  
 B)  $36\sqrt{3}$   
 C) 18  
 D)  $18\sqrt{3}$   
 E)  $19\sqrt{3}$

12. [CD] ağırtay  
 [CD] bisektor  
 $[DE] \parallel [BC]$   
 $|AC| = 7$  cm  
 $|BC| = 9$  cm  
 $|AE| = x$  cm  
 $\sqrt{x} = ?$



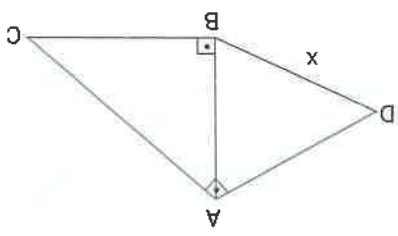
- A)  $\frac{81}{49}$   
 B)  $\frac{9}{7}$   
 C)  $\frac{16}{49}$   
 D)  $\frac{8}{9}$   
 E)  $\frac{4}{7}$

10. ABCDE düzün besgen  
 ABCDE regular pentagon  
 $[FE] \perp [ED]$   
 $6|AF| = 5|FK|$   
 $|AE| = 10$  cm  
 $|KE| = x = ?$



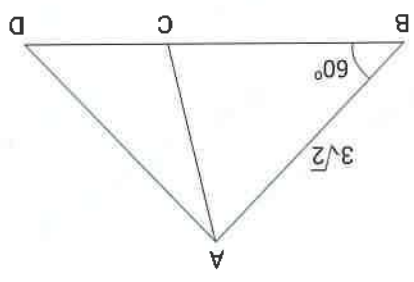
- A) 10  
 B) 12  
 C) 15  
 D) 16  
 E) 18

13. ABC dik üçgen  
 ABC right trianğ  
 $[AD] \perp [AC]$   
 $|BC| = 20$  cm  
 $|AC| = 25$  cm  
 $|AD| = 14$  cm  
 $|BD| = x = ?$



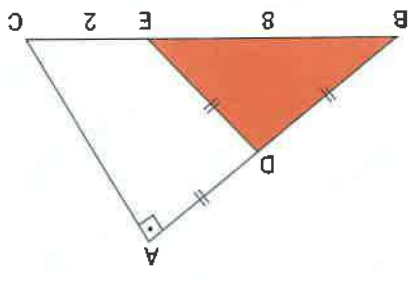
- A)  $\sqrt{85}$   
 B)  $\sqrt{89}$   
 C) 13  
 D) 15  
 E) 20

1.  $m(\widehat{ABC}) = 60^\circ$   
 $|BC| = 2|CD|$   
 $|AB| = 3\sqrt{2}$   
 $|BD| = 9\sqrt{2}$   
 $A(\widehat{ACD}) = ?$



- A)  $9\sqrt{2}$   
 B)  $9\sqrt{3}$   
 C)  $\frac{9\sqrt{3}}{2}$   
 D)  $9\sqrt{6}$   
 E)  $\frac{9\sqrt{6}}{2}$

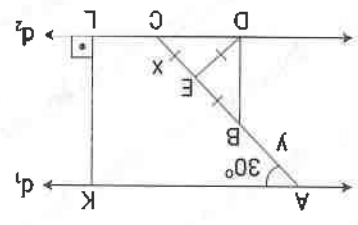
14. ABC bir üçgen  
 $[BA] \perp [AC]$   
 $|AD| = |DB| = |DB|$   
 $|BE| = 8$  cm  
 $|EC| = 2$  cm  
 $A(\widehat{BDE}) = ?$



- A) 8  
 B) 10  
 C) 16  
 D) 20  
 E) 24

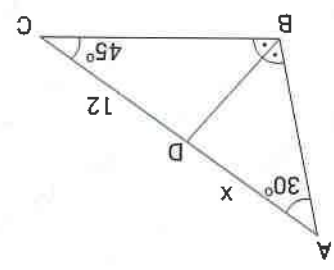


17.  $d_1 // d_2$   
 $m(\widehat{CAK}) = 30^\circ$   
 $|BE| = |EC| = |DE|$   
 $|CD| = 6\sqrt{3}$   
 $|KL| = 10$  cm  
 $|AB| = y$  cm  
 $|EC| = x$  cm  
 $y - x = ?$



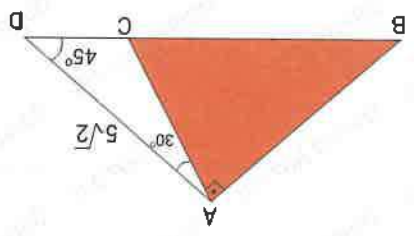
- A) 1 B) 2 C) 3 D) 4 E) 5

16. ABC bir üçgen  
 [BD] açıortay  
 [BD] bisector  
 $m(\widehat{BAC}) = 30^\circ$   
 $m(\widehat{BCD}) = 45^\circ$   
 $|CD| = 12$  cm  
 $|AD| = x$  cm = ?



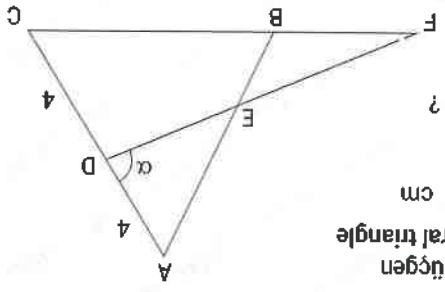
- A) 6 B)  $6\sqrt{2}$  C) 12 D)  $12\sqrt{2}$  E)  $15\sqrt{2}$

20. [AB]  $\perp$  [AC]  
 $m(\widehat{CAD}) = 30^\circ$   
 $m(\widehat{ADB}) = 45^\circ$   
 $|AD| = 5\sqrt{2}$   
 $m(\widehat{ABC}) = ?$



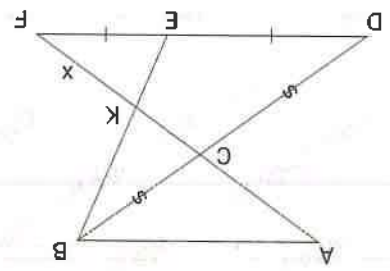
- A) 40 B) 50 C) 60 D) 70 E) 75

19. ABC eşkenar üçgen  
 ABC equilateral triangle  
 $|AD| = |DC| = 4$  cm  
 $|FB| = 4\sqrt{3}$   
 $m(\widehat{ADE}) = \alpha = ?$



- A) 45 B) 55 C) 60 D) 75 E) 90

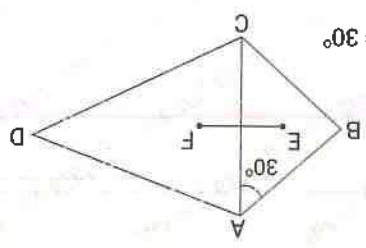
15. [AB] // [DF]  
 $|BC| = |CD|$   
 $|DE| = |EF|$   
 $|AC| = 12$  cm  
 $|KF| = x = ?$



- A) 4 B) 6 C) 8 D) 10 E) 11

- 18.

- $m(\widehat{BAC}) = 30^\circ$   
 $|AB| = |BC|$   
 $|AD| = |AC| = |CD| = 6\sqrt{3}$  cm  
 E, ABC üçgeninin ağırlık merkezi  
 E, the center of gravity for triangle ABC  
 F, ACD üçgeninin ağırlık merkezi  
 F, the center of gravity for triangle ACD  
 $|EF| = ?$



- A) 1 B) 2 C) 3 D) 4 E) 5

# Başarıya Götüren



Mat	Problem 2 Problems	Mat	Problem 1 Logic
IQ	Problem 1 Problem	IQ	Problem 1 Problem
Geo	Problem 1 Problem	Geo	Right Angle B / Right Angle A

Mat	Problem 1 Problem	Mat	Problem 1 Problem
IQ	Problem 1 Problem	IQ	Problem 1 Problem
Geo	Problem 1 Problem	Geo	Problem 1 Problem

Mat	Problem 1 Problem	Mat	Problem 1 Problem
IQ	Problem 1 Problem	IQ	Problem 1 Problem
Geo	Problem 1 Problem	Geo	Problem 1 Problem

Mat	Problem 1 Problem	Mat	Problem 1 Problem
IQ	Problem 1 Problem	IQ	Problem 1 Problem
Geo	Problem 1 Problem	Geo	Problem 1 Problem

Mat	Problem 1 Problem	Mat	Problem 1 Problem
IQ	Problem 1 Problem	IQ	Problem 1 Problem
Geo	Problem 1 Problem	Geo	Problem 1 Problem

Mat	Problem 1 Problem	Mat	Problem 1 Problem
IQ	Problem 1 Problem	IQ	Problem 1 Problem
Geo	Problem 1 Problem	Geo	Problem 1 Problem

Mat	Problem 1 Problem	Mat	Problem 1 Problem
IQ	Problem 1 Problem	IQ	Problem 1 Problem
Geo	Problem 1 Problem	Geo	Problem 1 Problem

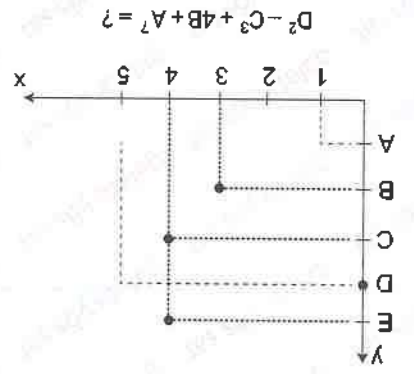
Mat	Problem 1 Problem	Mat	Problem 1 Problem
IQ	Problem 1 Problem	IQ	Problem 1 Problem
Geo	Problem 1 Problem	Geo	Problem 1 Problem

Mat	Problem 1 Problem	Mat	Problem 1 Problem
IQ	Problem 1 Problem	IQ	Problem 1 Problem
Geo	Problem 1 Problem	Geo	Problem 1 Problem

Mat	Problem 1 Problem	Mat	Problem 1 Problem
IQ	Problem 1 Problem	IQ	Problem 1 Problem
Geo	Problem 1 Problem	Geo	Problem 1 Problem

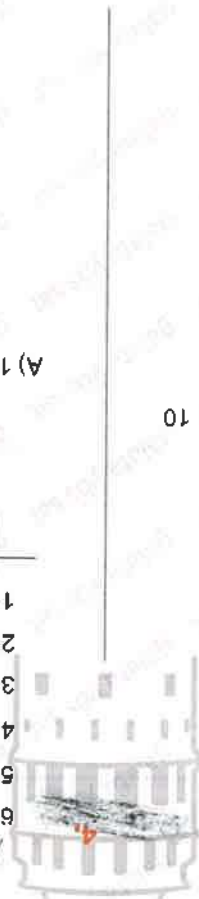
14

2.



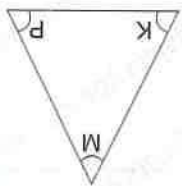
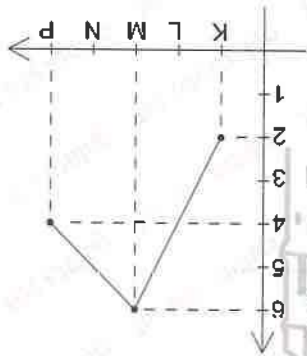
- A) 20    B) 30    C) -26    D) -20    E) 10

$$D^2 - C^2 + 4B + A^2 = ?$$

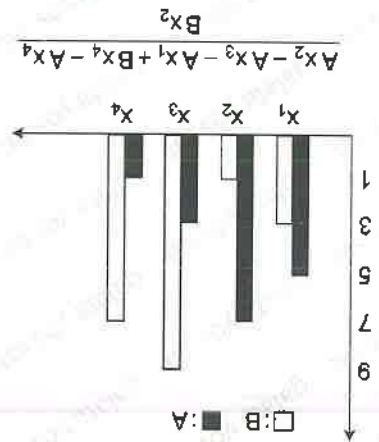


$$P + K - M = ?$$

- A) 180    B) 150    C) 90    D) 30    E) 0



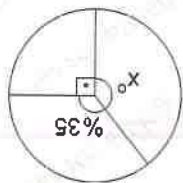
1.



- A) 1    B) 2    C) 3    D) 4    E) 5

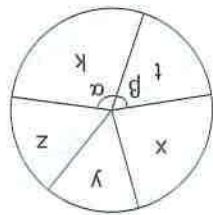
$$\frac{Ax_2 - Ax_3 - Ax_1 + Bx_4 - Ax_4}{Bx_2}$$

3.



$$X_0 = ?$$

- A) 130    B) 134    C) 148    D) 144    E) 140



x	%20
y	%10
z	%7
t	%19
k	%44

$\alpha - \beta = ?$

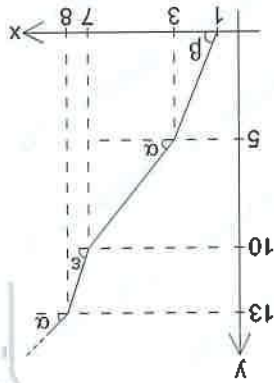
- A) 93,4 B) 90 C) 81,6 D) 70 E) 66,8

5.

A:B=?

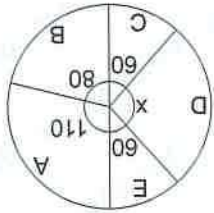
- I.  $x=28$   $y=A$   
 II.  $y=58$   $x=B$

6.



- A) 45:34 B) 38:54 C) 54:38 D) 44:38 E) 38:44

8.

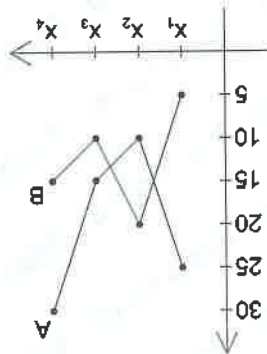
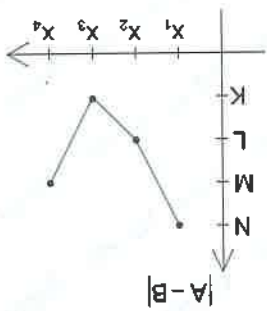


$A+B+C+D+E=1080$   
 $\Rightarrow D=?$

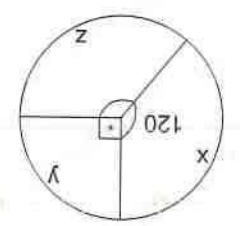
- A) 50 B) 150 C) 240 D) 300 E) 200



$K+L+N-M=?$



7.

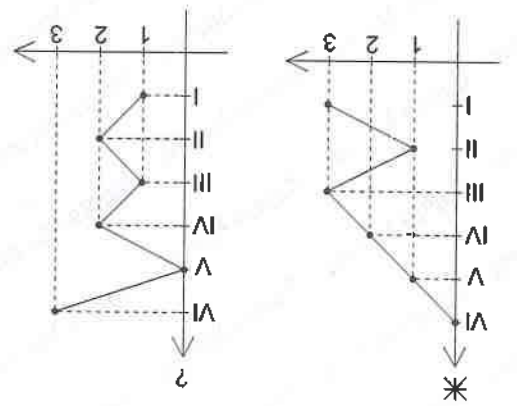


x:y:z=?

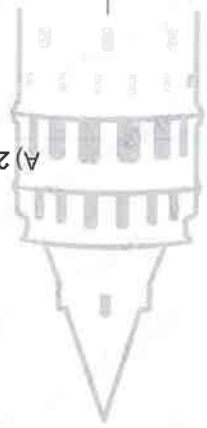
9. A) 3,4,5 B) 4,3,5 C) 5,2,3 D) 4,5,3 E) 5,3,4

I	*	●	□	▲	*
II	*	●	□	▲	○
III	*	●	□	▲	*
IV	*	●	□	▲	*
V	*	●	□	▲	*
VI	*	●	□	▲	*

10.



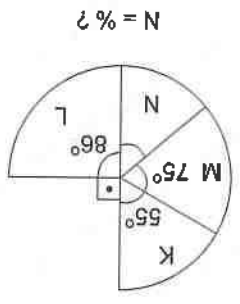
- A) ● B) ○ C) □ D) ♠ E) \*



12.

A) 20

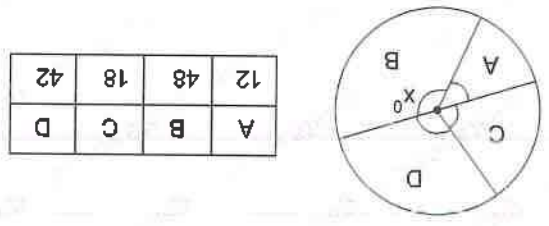
- B) 30 C) 35 D) 40 E) 45



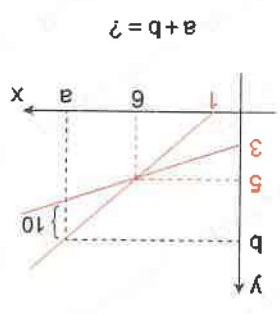
N = % ?

11. A) 105 B) 126 C) 144 D) 162 E) 170

x = ?



11.

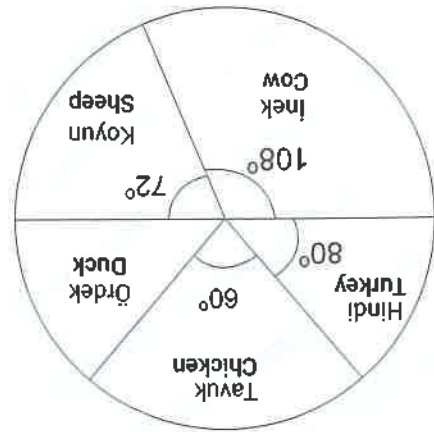


a+b=?

- A) 26 B) 41 C) 45 D) 52 E) 56



14.

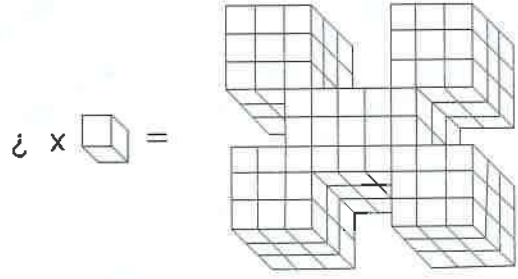


Yukarıdaki dairesel grafikte, Çiftlikteki 405 hayvanın ayak sayılarına göre dağılımı verilmiştir. Bu çiftlikteki ördek sayısı kaçtır ?

In a farm, there are 405 animals. The graph given above shows the number of legs of these animals. How many ducks are there in this farm ?

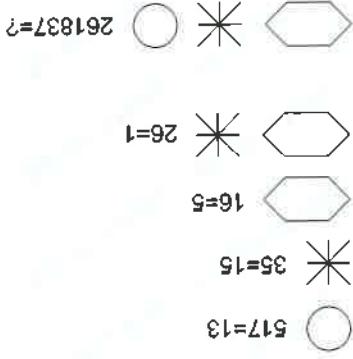
- A) 35 B) 40 C) 50 D) 60 E) 72

15.



- A) 114 B) 147 C) 150 D) 153 E) 156

18.



- A) 3 B) 5 C) 6 D) 8 E) 9

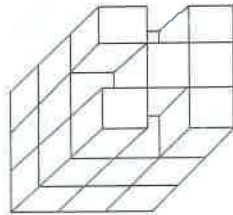
17.

+	a	b	c
a	b		
b	c		
c			64

$a+b=?$

- A) 109 B) 110 C) 114 D) 125 E) 138

16.

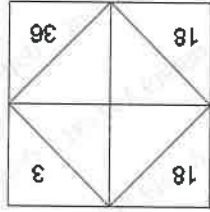


Yukarıda eş küplerden oluşmuş şekle göre görünme-yen yüzey sayısı kaçtır ?

According shaped shape above consisting of equally shaped cubes, how many surfaces are not visible ?

21. 5 \* 2=17  
9 \* 4=17  
12 \* 5=19  
15 \* 6=?

- A) 8 B) 9 C) 14 D) 18 E) 19

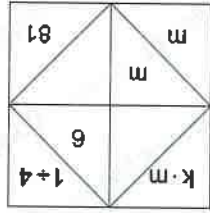


$$k \cdot n = ?$$

- A) 16 B) 15 C) 14 D) 12 E) 9

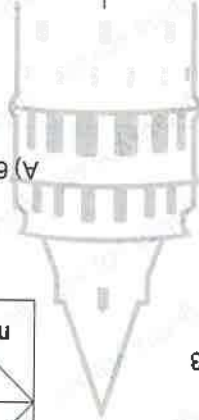
20. 73, 69, 64, 62, 58, ?

- A) 57 B) 56 C) 55 D) 54 E) 53

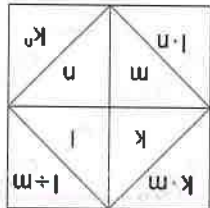


$$k \cdot m = ?$$

- A) 68 B) 72 C) 108 D) 116 E) 144

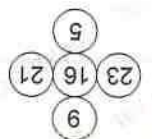
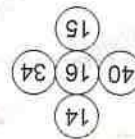
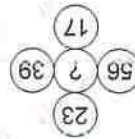


22.



Aşağıdaki 22. ve 23. sorular  
yandaki şekle göre yapılacaktır.  
The 22nd and 23rd questions  
below will be made according  
to the figure below.

- A) 15 B) 23 C) 27 D) 32 E) 35

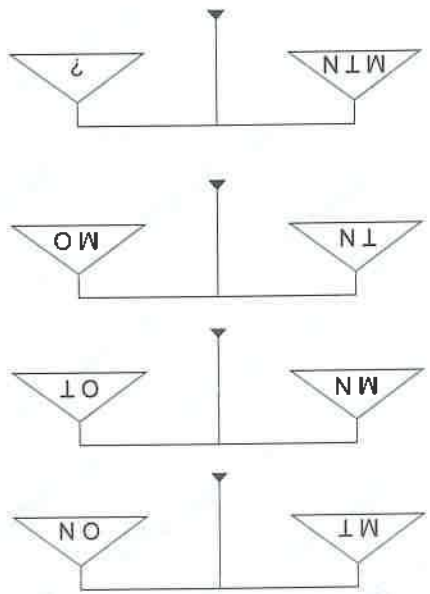


19.

Özellik Feature

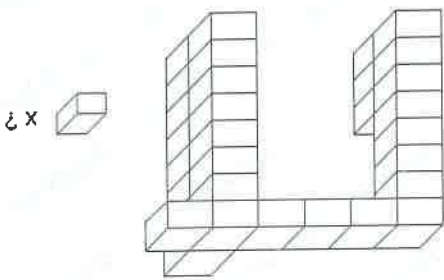


24.



- A) MM
- B) NN
- C) TO
- D) MOOE
- E) NN

26.

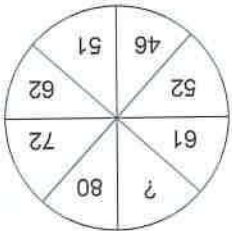


- A) 27
- B) 28
- C) 29
- D) 30
- E) 31

27.



- A) 32
- B) 36
- C) 94
- D) 46
- E) 61



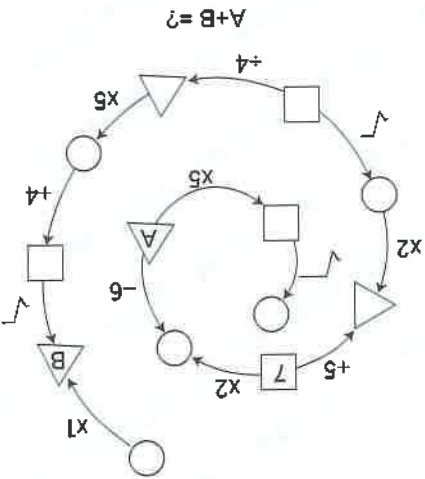
25.

+	a	b	c
a	3c		
b			12
c	13		

a = ?

- A) 5
- B) 6
- C) 7
- D) 8
- E) 9

28.



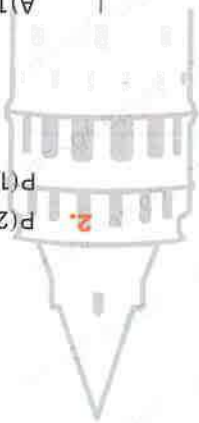
- A) 21
- B) 23
- C) 25
- D) 27
- E) 29

LİFAĞ 02535  
KİLEF 42017  
LİLAT 53026  
MİLEÇ 02738  
TALİM 62019

29. ve 30. soru yukarıdaki verilere göre cevaplanacaktır.  
29th and 30th questions will be answered according to the above data.

29.  $\sqrt{\sqrt{11}i} + \sqrt{TK} = ?$

- A) 2    B) 3    C) 4    D) 5    E) 6



2.  $P(2) = P(-1) = P(3) = 0$   
 $P(1) = 8$

$\Rightarrow K = ?$

$$\frac{K}{P(x-2) \cdot (x+1)}$$

- A) 180    B) -120    C) 100    D) -100    E) 0

30.  $\frac{F}{G^2 - T^2} = ?$

- A) M    B) A    C) E    D) G    E) K

3. 
$$\frac{P(x)}{x+1} = \frac{0}{x+1}$$
  

$$\frac{P(x)}{x-4} = \frac{10}{x-4}$$
  

$$\frac{P(x)}{x^2-3x-4} = \frac{K(x)}{x^2-3x-4}$$
  
 A)  $2x-2$  B)  $2x-3$  C)  $2x+2$   
 D)  $2x+3$  E)  $2x$

6. P(x) polinom / polynomial  

$$P(x) = x^4 - x^{m-1} - 2x^{m-6} - x$$
  

$$\sum m = ?$$
  
 A) 24 B) 22 C) 18 D) 16 E) 12

4. 
$$P(x-2) = x^2 + 2ax + 7 - a$$
  

$$\frac{P(x+1)}{x+3} = \frac{0}{x+3}$$
  

$$\Rightarrow a = ?$$

- A) 3 B) 4 C) 5 D) 6 E) 7

5. 
$$P(x) = 4x^3 - 3x^2 + 7$$
  

$$P(x+2)$$
 polinomunun katsayıları toplamı kaçtır?  
 P(x+2)'nin katsayıları toplamı kaçtır?  
 A) 88 B) 89 C) 90 D) 91 E) 92

8.

$$\frac{x^{10} - 2x + 1}{x-1} = Q(x)$$

Q(x) polinomunun katsayıları toplamı kaçtır?  
 What is the sum of the coefficients of the polynomial Q(x)?

- A) 2 B) 4 C) 6 D) 8 E) 10

7. 
$$P(\sqrt{x^4}) = x^{16} + 2x^4 + 1$$
  

$$\frac{P(x)}{x+1} = \frac{K}{x+1}$$
  

$$\Rightarrow K = ?$$

- A) 1 B) 2 C) 3 D) 4 E) 5



9.  $(x+2)P(x) = x^2 - ax - 8$

$$\frac{P(x+3)}{x-4} = \frac{K}{x-4}$$

$\Rightarrow K = ?$

- A) 0 B) 1 C) 2 D) 3 E) 5

12.  $x \in \mathbb{Z}$

$\overbrace{99 \dots 9}^{19 \text{ lere (99)}} = x \pmod{10}$

$\Rightarrow x = ?$

- A) -3 B) -5 C) 1 D) -1 E) -2

10.  $P(3x+5) = 2x^3 - x + 4$

$P(x-4)$  ün sabit terimi kaçtır?

What is the constant term of  $P(x-4)$ ?

- A) -36 B) -38 C) -45 D) -47 E) -52

A) [0, 2]

B) (2, 6]

E) [2, 6)

C) (4, 6]

D) [2, 4]

13.  $25 \leq 5^a < 625$  ve  $2a+b=10$

$\Rightarrow b = ?$

14.  $x^y + k^m = 5$ ,  $x^y \cdot k^m = 2$

$\Rightarrow x^{3y} + k^{3m} = ?$

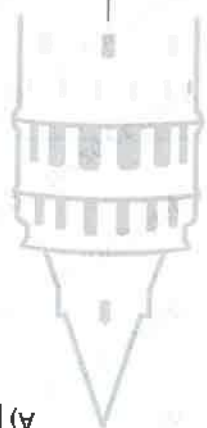
- A) 125 B) 115 C) 95 D) 45 E) 15

$n \cdot 10^a \equiv x \pmod{5}$

$\Rightarrow x = ?$

11.  $n = 123456789$

- A) 1 B) 0 C) 2 D) 4 E) -3



15.  $12^{m-1} = 3^{m+1} = \frac{1}{6^m} + 2^{-m-1} = ?$

- A)  $\frac{3}{5}$  B) 2 C)  $\frac{3}{7}$  D)  $\frac{3}{8}$  E)  $\frac{3}{10}$

18.  $a^4 + 4a^3 + 6a^2 + 4a - 15$

ifadesinin çarpanlarından biri hangisidir ?  
Which is one of the factors of expression?

- A)  $a^2 - a + 3$  B)  $a^2 - a + 1$  C)  $a^2 + a - 1$   
D)  $a^2 + 2a - 3$  E)  $a^2 + 2a + 1$

16.  $\frac{\sqrt{a-2}}{\sqrt{7+1}} = \frac{\sqrt{a+2}}{\sqrt{7-1}} \Rightarrow a = ?$

- A) 10 B) 11 C) 12 D) 13 E) 14

19.  $x < 4$   
 $\sqrt{x^2 - 7x + 12} + \sqrt{x^2 - 8x + 16} = ?$

- A)  $x - 4$  B)  $4 - x$  C)  $3 - x$   
D)  $3 + x$  E) 0

17.  $\sqrt{3-y} = -x^2 + 8x - 16 \Rightarrow x + y = ?$

- A) 7 B) 8 C) 9 D) 10 E) 11

20.  $m = 0,3 + 0,09 + 0,009 + 0,0009 + \dots$

$n = 0,2 + 0,03 + 0,003 + 0,0003 + \dots$

$k = 4 - 0,6 - 0,06 - 0,006 - \dots$

$\Rightarrow m + n + k = ?$

- A)  $\frac{1}{30}$  B)  $\frac{119}{30}$  C)  $\frac{29}{30}$  D)  $\frac{13}{45}$  E)  $\frac{17}{45}$



21. Aşağıdakilerden hangisi tek sayıdır ?

Which of the following is an odd number?

- A)  $4^{10} + 71$   
 B)  $651 - 5^0$   
 C)  $0! + 7^{25}$   
 D)  $6^7 \cdot 5^8 - 10^4$   
 E)  $13! - 8!$

22.  $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{x}}} = ?$

- A)  $\frac{x}{3x}$   
 B)  $\frac{4x+1}{2x+3}$   
 C)  $\frac{3x+2}{2x+1}$   
 D)  $\frac{2x+1}{2x+3}$   
 E)  $\frac{5x+1}{x+3}$

23.  $f: \mathbb{R} \rightarrow \left(-\infty, -\frac{1}{2}\right)$   
 $f(x) = 4x^2 - 4x - 4$   
 $\Rightarrow f(x)^{-1} = ?$

- A)  $1 + \sqrt{x+5}$   
 B)  $\frac{1}{1 - \sqrt{x+5}}$   
 C)  $\frac{\sqrt{x+5} + 1}{2}$   
 D)  $1 - \sqrt{x+5}$   
 E)  $\frac{\sqrt{x+5} - 1}{2}$

24.  $x > y < 0 < z$   
 $\sqrt{(x-y)^2} + \sqrt[4]{(y-z)^4} + \sqrt[8]{(z-y)^8} = ?$

- A)  $2z - x - y$   
 B)  $0$   
 C)  $2z + x$   
 D)  $x - y$   
 E)  $2z - x + y$

26.  $(e \circ f)^{-1} = (a * b) * y$

$\Rightarrow y = ?$

- A) a  
 B) b  
 C) c  
 D) f  
 E) e

Yükarıda tanımlanmış işlemlere göre 26, 27, 28, 29, 30 soruları cevaplayınız.  
 Answer questions 26, 27, 28, 29, 30 according to the procedures described above.

$a \circ a^{-1} = e$   $a \circ y = y$   $a \circ e = a$

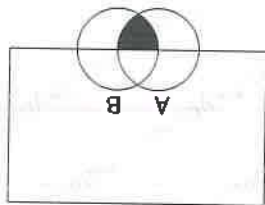
$k * m = (k \circ m) \circ k$

$k \Delta m = (k * m) \circ (m * k)$

$f(x, y) = (x \Delta y) * y$

○	a	b	c	d	e	f	
○	a	b	c	d	e	f	
○	a	b	c	a	f	d	e
○	a	b	c	d	e	f	d
○	a	b	c	d	e	f	d
○	a	b	c	d	e	f	d
○	a	b	c	d	e	f	d
○	a	b	c	d	e	f	d
○	a	b	c	d	e	f	d
○	a	b	c	d	e	f	d

Taralı Alan = ?  
 Shaded area = ?



- A)  $(A \cap B) \cup C$   
 B)  $A \cap (B \cap C)$   
 C)  $(A - B) \cap C$   
 D)  $(A \cup B) \cap C$   
 E)  $(A \cap B) / C$

27.  $(a \circ b)^{-1} \circ c = ?$

- A) e B) a C) b D) c E) d

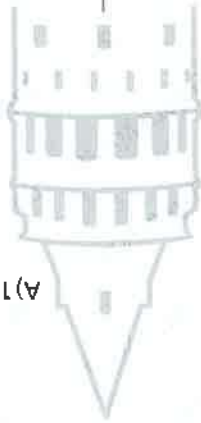
30.  $(c * d) \circ x = d$

$= x = ?$

- A) e B) d C) c D) b E) a

28.  $(b * c) \circ e = ?$

- A) f B) e C) a D) d E) c

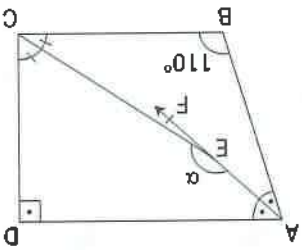


1. [AD]  $\perp$  [DC]

[AF], [CE] açıortay

[AF], [CE] bisector

$m\angle ABC = 110^\circ$



- A) 130 B) 140 C) 150 D) 160 E) 170

29.  $f(a,b) = ?$

- A) b B) c C) d D) e E) f

2. [ED]  $\perp$  [AE]

[BD]  $\perp$  [AC]

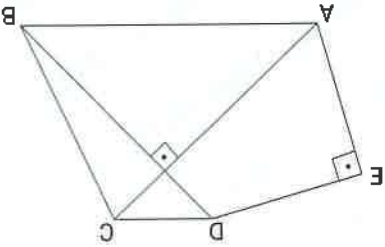
[AE] = a = [CD]

[ED] = b = [BC]

$|AB| = 5\sqrt{2}$  cm

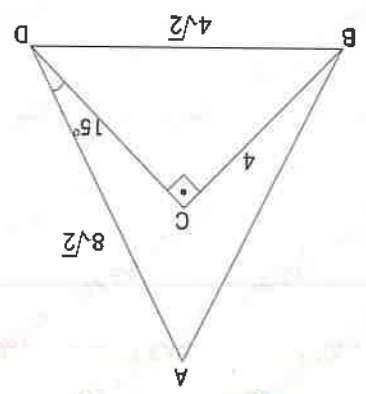
$|BC| = b = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5



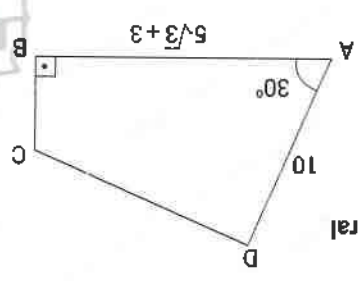


3. [BC] ⊥ [CD]  
 |BC| = 4 cm  
 |BD| = 4√2 cm  
 |AD| = 8√2 cm  
 m(∠ADC) = 15°  
 A(ABCD) = ?



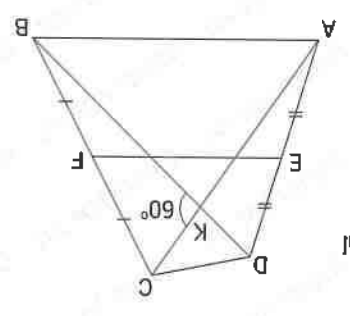
- A) 16√3 + 8  
 B) 16√3 - 8  
 C) 8√3 + 16  
 D) 8√3 - 8  
 E) 16√3 + 16

4. ABCD bir dörtgen  
 ABCD is a quadrilateral  
 |BC| = 1 cm  
 |AD| = 10 cm  
 |AB| = 5√3 + 3m  
 m(∠DAB) = 30°  
 A(ABCD) = ?



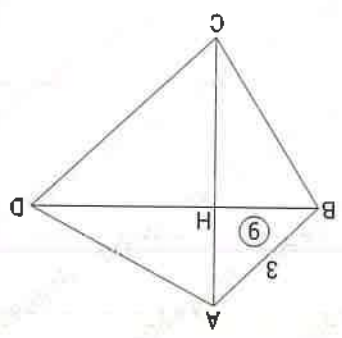
- A) 25√3 + 9  
 B) 25√3 - 9  
 C) 25√3 + 18  
 D) 25√3 + 9  
 E) 25√3 - 9

5. ABCD dörtgen  
 ABCD is a quadrilateral  
 [BD] ve [AC] köşegen  
 [BD] and [AC] diagonal  
 m(∠BKC) = 60°  
 |BK| = 12 cm  
 |AC| = 8 cm  
 |EF| = ?



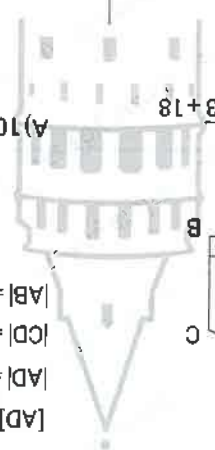
- A) 2√7  
 B) 8  
 C) √76  
 D) 10  
 E) 11

6. ABCD bir dörtgen  
 ABCD is a quadrilateral  
 [AB] // [CD]  
 |AB| = 3 cm  
 |CD| = 5 cm  
 A(∆BH) = 9 cm²  
 A(ABCD) = ?

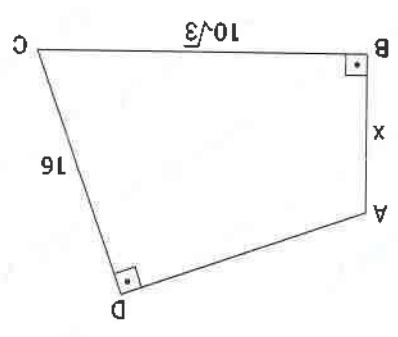


- A) 45  
 B) 50  
 C) 60  
 D) 64  
 E) 70

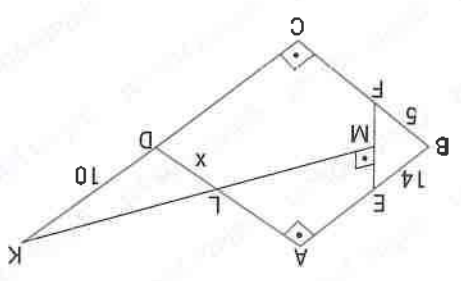
7. [AB] ⊥ [BC]  
 [AD] ⊥ [CD]  
 |AD| = 12 cm  
 |CD| = 10√3 cm  
 |AB| = x = ?



- A) 10  
 B) 15  
 C) 10√2  
 D) 20  
 E) 24

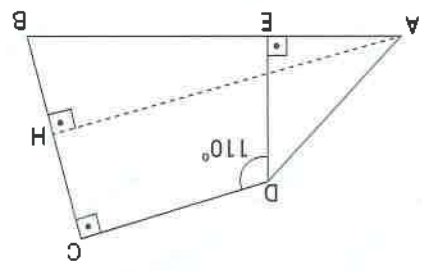


8. [EF] ⊥ [MK]  
 [BC] ⊥ [CK]  
 [AB] ⊥ [AD]  
 |BF| = 5 cm  
 |BE| = 14 cm  
 |DK| = 10 cm  
 |DL| = x = ?



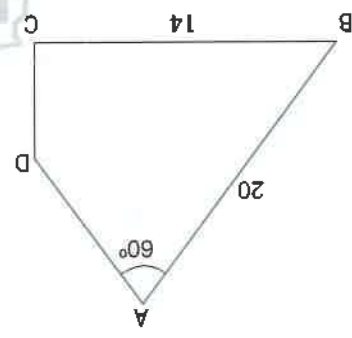
- A) 12  
 B) 14  
 C) 16  
 D) 24  
 E) 28

9. [AH] ⊥ [BC]  
[DC] ⊥ [BC]  
[DE] ⊥ [AB]  
 $m(\widehat{EDC}) = 110^\circ$   
 $m(\widehat{BAD}) = 55^\circ$   
|DE| = 3 cm  
|DC| = 7 cm  
|AH| = h = ?



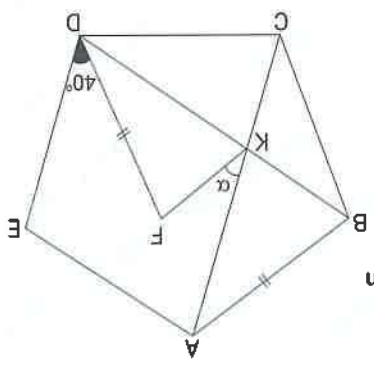
- A) 4 B) 5 C) 6 D) 7 E) 10

10.  $m(\widehat{A}) = m(\widehat{B}) = 60^\circ$   
 $m(\widehat{C}) = 90^\circ$   
|BC| = 14 cm  
|AB| = 20 cm  
 $\hat{C}(ABCD) = ?$



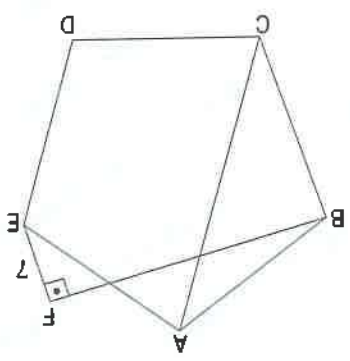
- A) 40 B) 54 C) 60 D)  $40 + 60\sqrt{3}$  E)  $42 + 6\sqrt{3}$

11. ABCDE düzğün beşgen  
|AB| = |FD|  
 $m(\widehat{FDE}) = 40^\circ$   
 $\alpha = ?$



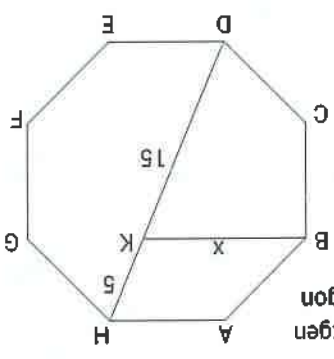
- A)  $30^\circ$  B)  $31^\circ$  C)  $32^\circ$  D)  $33^\circ$  E)  $34^\circ$

12. ABCDE düzğün beşgen  
|EF| = 7 cm  
|AC| = 25 cm  
|BF| = ?



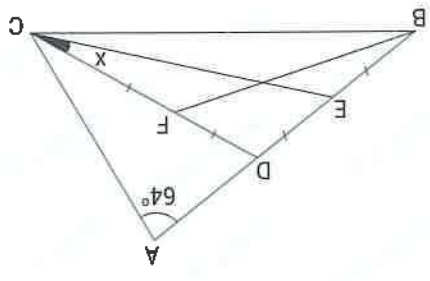
- A) 14 B) 20 C) 24 D) 25 E) 30

13. ABCDFEĞH düzğün sekizgen  
|HK| = 5  
|DK| = 15  
|BK| = ?



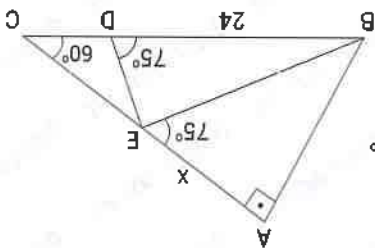
- A) 5 B)  $5\sqrt{5}$  C) 15 D) 10 E)  $10\sqrt{5}$

14. ABC bir üçgen  
ABC triangle  
|DB| = |DC|  
|BF| = |AC|  
|CE|, |BF| kenarortay  
 $m(\widehat{ABC}) = 40^\circ$   
 $m(\widehat{BAC}) = 64^\circ$   
 $\Rightarrow x = ?$



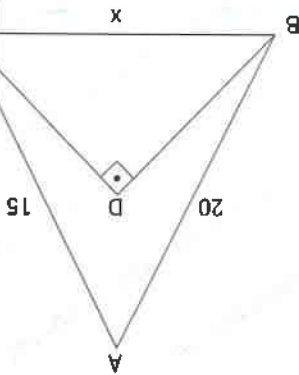
- A) 20 B) 24 C) 16 D) 36 E) 40

17. [BA] ⊥ [AC]  
 $m(\widehat{ACB}) = 60^\circ$   
 $m(\widehat{AEB}) = m(\widehat{EDB}) = 75^\circ$   
 $|BD| = 24$   
 $|AE| = x = ?$



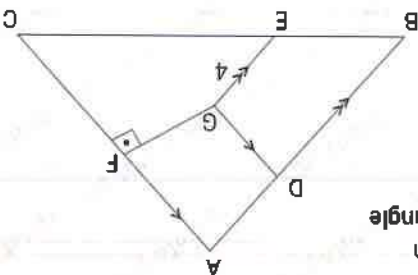
- A) 6 B) 9 C) 12 D) 16 E) 24

16. [BD] ⊥ [CD]  
 $|AB| = 20$  cm  
 $|AC| = 15$  cm  
 $|BC| = x$   
 $x \in \mathbb{Z}$  max(x) = ?



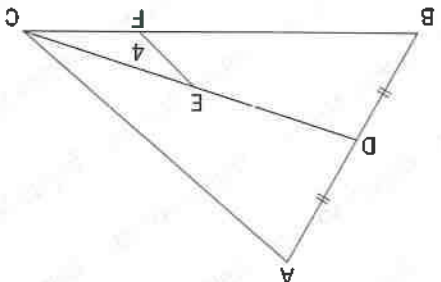
- A) 18 B) 20 C) 21 D) 22 E) 24

15. ABC eşkenar üçgen  
 $[DG] \parallel [AC]$   
 $[GE] \parallel [AB]$   
 $[GF] \perp [AC]$   
 $[DG] = 2$  cm  
 $[GE] = 4$  cm  
 $[GF] = 5\sqrt{3}$  cm  
 $\hat{C}(\widehat{ABC}) = ?$



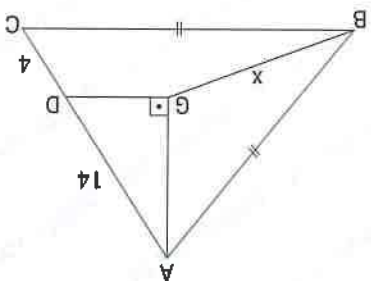
- A) 40 B) 42 C) 48 D) 50 E) 60

20. ABC bir üçgen  
 $[AC] \parallel [EF]$   
 $2|DE| = 3|EC|$   
 $|AD| = |DB|$   
 $|EF| = 4$   
 $|AC| = ?$



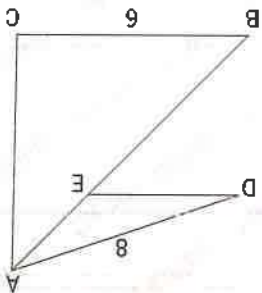
- A) 10 B) 20 C) 25 D) 30 E) 35

19. ABC bir üçgen  
 G: ağırlık merkezi  
 $[AG] \perp [GD]$   
 $|AB| = |AC|$   
 $|DC| = 4$   
 $|AD| = 14$   
 $|BG| = x$



- A)  $6\sqrt{5}$  B)  $3\sqrt{5}$  C)  $2\sqrt{5}$  D)  $\sqrt{5}$  E) 5

18.  $m(\widehat{ABC}) + m(\widehat{BAC}) = 90^\circ$   
 $m(\widehat{BAC}) = m(\widehat{DAE})$   
 $3|BE| = 5|AE|$   
 $|BC| = 6$  cm  
 $|AD| = 8$  cm  
 $A(\widehat{ADE}) = ?$

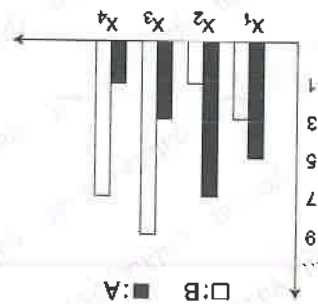


- A) 6 B) 7 C) 8 D) 9 E) 10





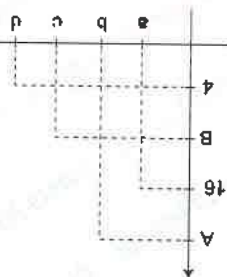
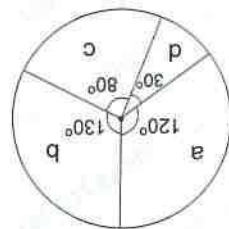
1.



$$\Rightarrow \frac{Ax_1 + Bx_2 - Ax_3 + Bx_4 - Ax_4}{Bx_1} = ?$$

- A) 1 B) 2 C) 3 D) 4 E) 5

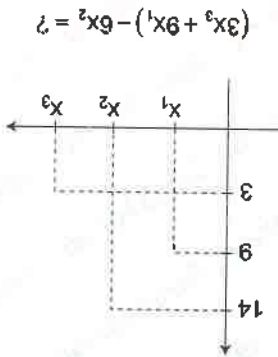
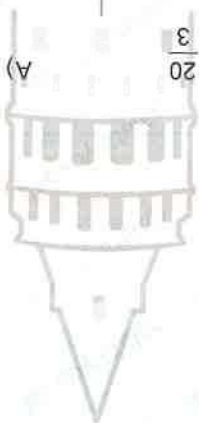
2.



A - B = ?

- A)  $\frac{3}{14}$  B)  $\frac{3}{16}$  C)  $\frac{3}{17}$  D)  $\frac{3}{19}$  E)  $\frac{3}{20}$   
 A) 6 B) -6 C) 21 D) 30 E) -30

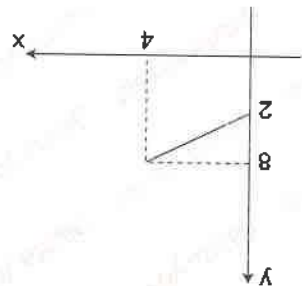
5.



$(3x_3 + 9x_2) - 6x_1 = ?$

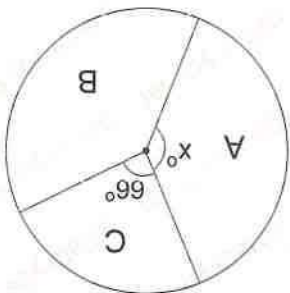
- A) 2 B) -1 C) 4 D) -4 E) 5

3.



$y = 44$   
 $x = ?$

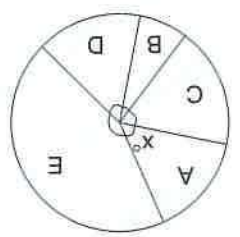
6.



$4A = 3B$   
 $x = ?$

- A) 168 B) 154 C) 126 D) 117 E) 97

- A) 30 B) 60 C) 90 D) 120 E) 150



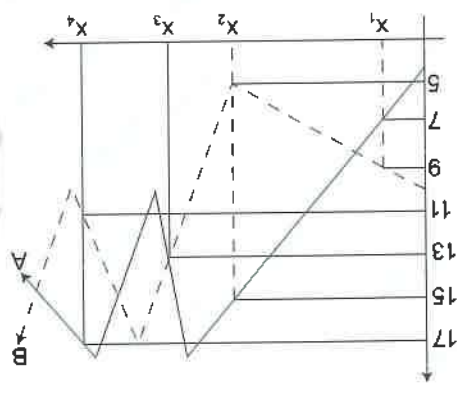
A	B	C	D	E
6	3	9	6	12

$x = ?$

10.

- A) 2 B) 4 C) 8 D) 11 E) 13

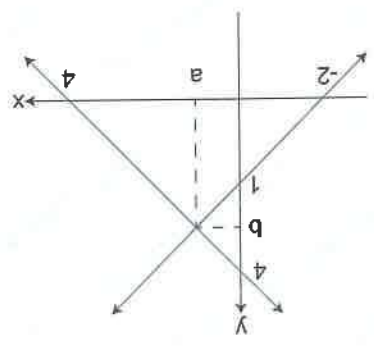
$a = A_{x_1} - B_{x_1}$   
 $b = A_{x_2} - B_{x_2}$   
 $a + b = ?$



8.

- A) 3 B) 4 C) 5 D) 6 E) 7

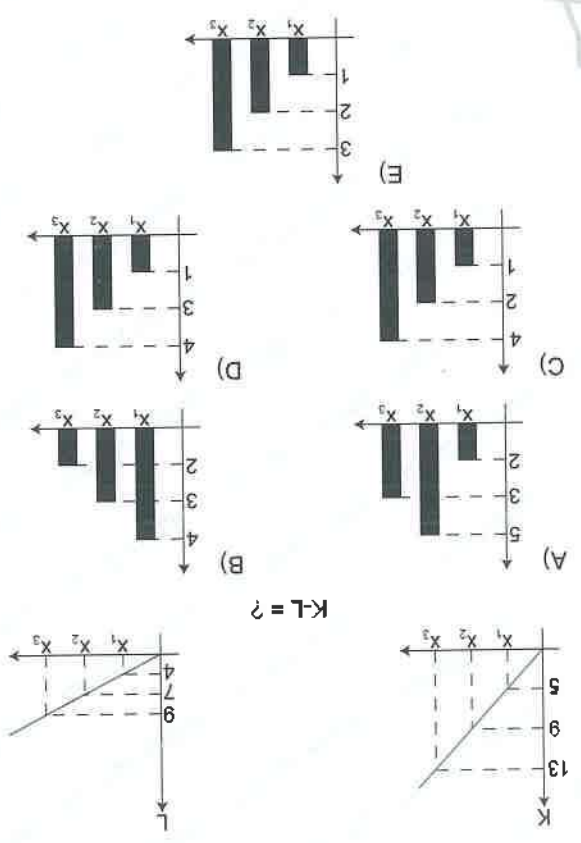
$a + b = ?$



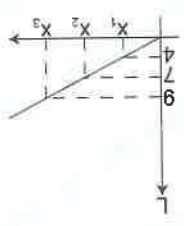
7.

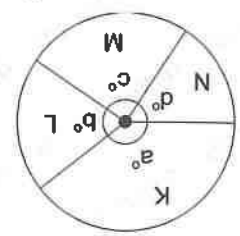


9.



$K - L = ?$



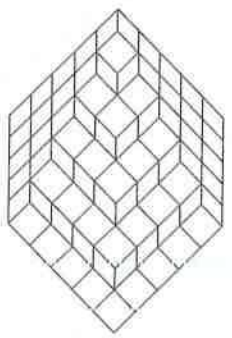


K	L	M	N
%40	%15	%20	%25

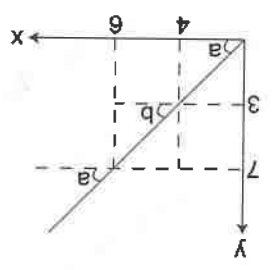
$$\frac{a^o + c^o}{b^o} = ?$$

- A) 3 B) 4 C) 5 D) 5 E) 7

13.



- A) 93 B) 94 C) 95 D) 96 E) 97

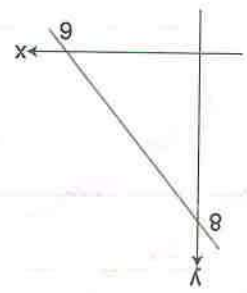


I.  $x=38$   
 $y=k$   
 II.  $y=64$   
 $x=L$   
 (K,L) = ?

- A) 31, 82 B) 30, 85 C) 31, 85 D) 32, 82 E) 33, 84

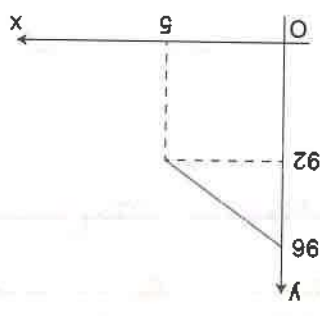
12.

- A) -25 B) -30 C) -35 D) -40 E) -45



$y=48$   
 $x=?$

11.



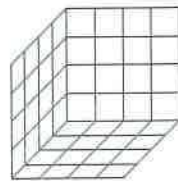
I.  $x=40$   $y=?$   
 II.  $y=44$   $x=?$

- A) 64 B) 68 C) 64 D) 68 E) 72

14.



16.

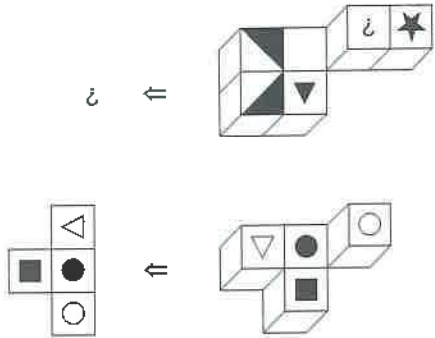


Yukarıdaki şekil birbirine eş 64 küçük küpten oluşmuştur. Bu küpün bütün yüzeyleri mavimsi boyanmıştır. Figura above is made from 64 small cubes equaling to each other all surfaces of this cube are painted with blue.

En az bir yüzeyi mavimsi olan küçük küp kaç tane vardır? How many cubes with one blue surface at least are made?

- A) 24 B) 48 C) 56 D) 60 E) 64

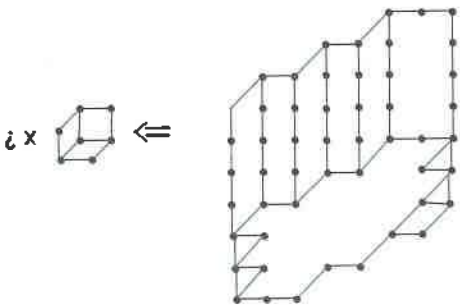
17.



⇒ ?

- A) A) B) C) D) E)

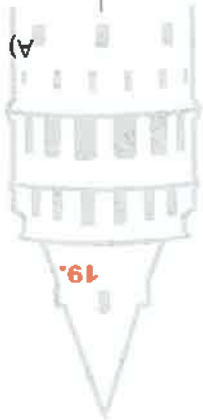
18.



⇒ x ?

- A) 75 B) 74 C) 73 D) 72 E) 71

19.

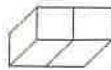


- A) A) B) C) D) E)

20.

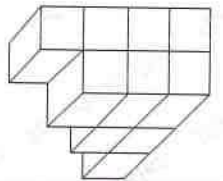


= 3



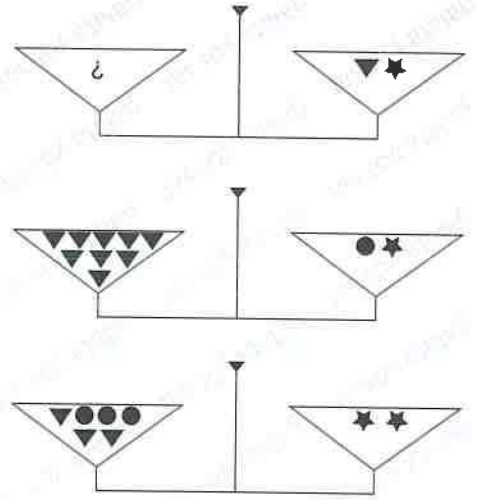
= 5

= ?



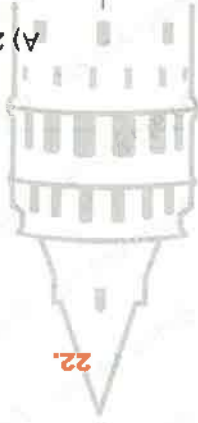
- A) 15 B) 16 C) 17 D) 18 E) 19

21.



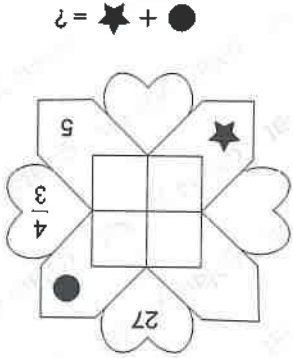
- A) ● ★ ● ●  
B) ● ▼ ● ● ● ●  
C) ▼ ● ● ● ● ●  
D) ● ● ▼ ▼ ▼ ▼ ▼ ▼  
E) ● ● ★ ★

22.



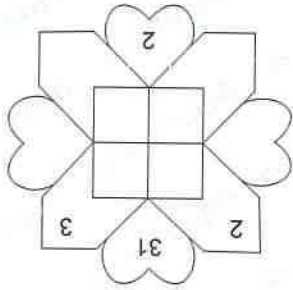
23.

- A) 4 B) 9 C) 12 D) 20 E) 23

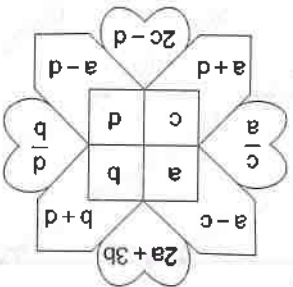


- A) 27 B) 28 C) 29 D) 30 E) 31

$$a+2b-3c=?$$



Yukarıdaki 22. ve 23. sorular yukarıdaki şekle göre yapılacaktır.  
The 22th and 23th questions below will be done according to the figur above.



Özellik Feature

IV	?	?	?	?	?	?
III	3	9	13	39	43	129
II	1	3	5	15	13	39
I	2	4	9	18	23	46

24.

- A) 3 12 9 27 24 72
- B) 5 15 12 36 33 99
- C) 4 16 13 42 39 156
- D) 2 8 9 36 33 132
- E) 3 15 12 60 57 164

- A) 73
- B) 18
- C) 45
- D) 48
- E) 54

26.

- 17 □ 4 = 47
- 6 □ 7 = 29
- 5 □ 4 = 11
- 8 □ 8 = ?

27.  $x\Delta y = 3(y\Delta x) - y$   
 $3\Delta 7 = ?$

- A) 2
- B) 3
- C) 5
- D) 7
- E) 11

25.

51	23	47		
31	40			
27	92	16		
18	43			
35	44			82



		A		
19	11			
	12			
29	34			22

- A) 30
- B) 52
- C) 62
- D) 64
- E) 74



		B		
	18			
	30			

A+B=?

28.

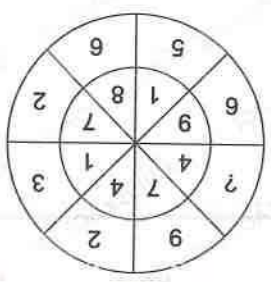
6	4	42	16
17	3	59	17

9	25
39	?

17	3
39	?

- A) 17
- B) 23
- C) 35
- D) 42
- E) 54

29.

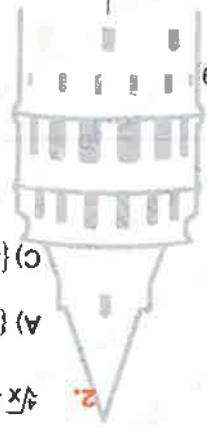


- A) 7
- B) 6
- C) 5
- D) 4
- E) 3

30.

8	7	6	9	2
5	8	?	3	5
7	2	6	9	4

- A) 2
- B) 5
- C) 6
- D) 7
- E) 9



2.  $\sqrt[4]{x+\sqrt{x}}=2 \Rightarrow S.S=?$

- A) {1}
- B)  $\{\sqrt{2}\}$
- C)  $\{-\sqrt{2}, \sqrt{2}\}$
- D)  $\{-1, 1\}$
- E)  $\emptyset$

1.  $x^2+x-1=0 \Rightarrow S.S=?$

- A)  $\{-1, 1\}$
- B)  $\{1, \sqrt{5}\}$
- C)  $\{-\sqrt{5}, \sqrt{5}\}$
- D)  $\left\{ \frac{1+\sqrt{5}}{2}, \frac{1-\sqrt{5}}{2} \right\}$
- E)  $\left\{ \frac{-1+\sqrt{5}}{2}, \frac{-1-\sqrt{5}}{2} \right\}$

3.  $\left(\frac{x}{x^2+1}\right)^2 - 3\left(\frac{x}{x^2+1}\right) + 2 = 0 \Rightarrow \sum x = ?$

- A) -2
- B) -1
- C) 1
- D) 2
- E) 3

4.  $x^2 - 5x + 2 = 0$  denkleminin kökleri  $x_1$  ve  $x_2$  dir  
Buna göre  $x_1^3 + x_2^3 = ?$   
The roots the equation  $x^2 - 5x + 2 = 0$  are  $x_1$  and  $x_2$   
accordingly,  $x_1^3 + x_2^3 = ?$   
A) 36 B) 45 C) 54 D) 81 E) 95
5. Denklem simetrik iki köklü olduğuna göre kökler çarpımı kaçtır?  
Since the equation has two symmetrical roots, what is the product of the roots?  
A) 3 B) 1 C) -1 D) -2 E) -3
6.  $f(x) = ax^2 + bx + c$   $x_1 = 2 - \sqrt{3}$   
 $f(x) = ?$   
A)  $4x^2 - x + 1 = 0$   
B)  $x^2 + 4x + 1 = 0$   
C)  $x^2 - 4x - 1 = 0$   
D)  $x^2 - 4x + 1 = 0$   
E)  $2x^2 - 3x + 6 = 0$
7.  $x^2 - 3x + 1 = 0 \Rightarrow |x_1^2 - x_2^2| = ?$   
A) 1 B) 2 C)  $\sqrt{5}$  D)  $3\sqrt{5}$  E)  $\sqrt{5} + 2$
8.  $x^2 - 5x - 1 = 0$ ,  $S, S = \{x_1, x_2\} \Rightarrow x_1 \cdot x_2^2 + x_2 \cdot x_1^2 = ?$   
Denklem simetrik iki köklü olduğuna göre kökler çarpımı kaçtır?  
Since the equation has two symmetrical roots, what is the product of the roots?  
A) -5 B) -3 C) -1 D) 2 E) 5
9.  $\frac{x(4-x)(x-5)}{16-x^2} = 0 \Rightarrow S, S = ?$   
A)  $\{-4\}$   
B)  $\{-4, 0\}$   
C)  $\{0, 5\}$   
D)  $\{-4, 0, 5\}$   
E)  $\{-4, 0, 4, 5\}$



$$12. P(x) = a \cdot x^{2018} + b \cdot x^{2017} + \sqrt{x+2} \cdot P(x) \quad 2a-b=?$$

- A) 4 B) 3 C) 2 D) 1 E) 0

- A) 5 B) 4 C) 3 D) 2 E) 1

Ifaderinden kaç tanesi kesinlikle doğrudur ?  
How many of the statements are absolutely true ?

V. der  $(P(Q(x))) = a \cdot b$

IV. der  $\left(\frac{P(x)}{Q(x)}\right) = a - b$

III. der  $(2P(x) \cdot 3Q(x)) = a$

II. der  $(P(x) \cdot Q(x)) = a + b$

I. der  $(2P(x) - 4Q(x)) = a$

olmak üzere.

13. der  $(P(x)) = a$ , der  $(Q(x)) = a$   $Q(x) \neq 0$  ve  $a \geq b$

- A) 6 B) 7 C) 8 D) 9 E) 10

- A)  $5x + 3$  B)  $4x + 2$  C)  $4x - 2$  D)  $-3$  E)  $5$

$n = ?$

$$17. \frac{|x-4|}{7+|x+6|} \leq 0 \quad SS = \{x_1, x_2, \dots, x_n\}$$

14.  $P(x)$  polinomunun  $(x^2 - x + 1)$  ile bölünen kalan  $(x + 2)$  olduğuna göre  $P^2(x)$  polinomunun  $(x^2 - x + 1)$  ile bölünen kalan aşağıdakilerden hangisidir ?  
 $x-2$  is the remainder from the division of the polynomial  $P(x)$  by  $(x^2 - x + 1)$ .  
What is the remainder of  $P^2(x)$  polynomial divided by  $(x^2 - x + 1)$  ?

- A) -5 B) -4 C) -3 D) -2 E) -1

- A)  $x$  B)  $x-1$  C)  $2x+1$  D)  $1$  E)  $-1$

$$13. P(x) = x^{2009} + x^{199} + \frac{k}{x^2 + x + 1}$$

$k = ?$

$$10. x^2 + 4x + 2 = 0, \quad S, S = \{x_1, x_2\} \Rightarrow \frac{10}{1-x_2} + \frac{x_1^2 + 4x_1}{x_2^2 + 3x_2 + 3} = ?$$

$$10. x^2 + 4x + 2 = 0, \quad S, S = \{x_1, x_2\}$$

16.  $\frac{101}{91} + \frac{81}{81} + \frac{71}{71} + \dots + \frac{01}{11} = ?$

- A) 101
- B) 91
- C) 45
- D) 55
- E)  $91+81+\dots+11$

17.  $a, b, c \in \mathbb{N}$

$$\sqrt[4]{\frac{a}{b+1}} = \frac{3}{4}$$

$$\sqrt[4]{\frac{b}{c-1}} = \frac{4}{3} \Rightarrow a = ?$$

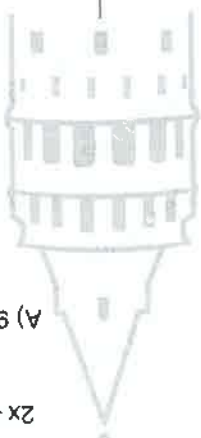
- A)  $12c+10$
- B)  $12c+11$
- C)  $4c-5$
- D)  $4c+5$
- E) 0

18.  $\sqrt[30]{x} = \sqrt[55]{\frac{30}{11}}$

$k = ?$

$$\sqrt[11]{x^2+3x+5} = k$$

- A) 7
- B) 6
- C) 5
- D) 4
- E) 3



20.

$$\begin{cases} x+y-z = -1 \\ 3x-y+2z = 10 \\ 2x+3y-3z = -4 \end{cases} \Rightarrow x+y+z = ?$$

- A) 9
- B) 10
- C) 11
- D) 12
- E) 13

19.

$$1 + \frac{1}{1+\frac{1}{1+\frac{1}{2}}} = ?$$

- A)  $\frac{3}{2}$
- B)  $\frac{5}{4}$
- C)  $\frac{7}{9}$
- D)  $\frac{5}{9}$
- E) 1

21.  $|x^2+x-12| = |x-3| \Rightarrow \sum x = ?$

- A) -5
- B) -2
- C) 0
- D) 2
- E) 5



22.  $728 \cdot (3^6 + 1) \cdot (3^{12} + 1) = 27^x - 1 \Rightarrow \sqrt[3]{x} + x = ?$

- A) 6 B) 8 C) 10 D) 12 E) 24

25.  $\frac{(1000)^7}{(0,0012 \cdot 10^{24}) + (0,013 \cdot 10^{23})} = ?$

- A) 10 B) 8 C) 5 D)  $\frac{5}{2}$  E) 1

23.  $8^8$  sayısı 4 tabanda yazıldığında kaç basamaklı bir sayı elde edilir ?

How many digits obtained when  $88$  is written in 4 radix ?

- A) 13 B) 12 C) 11 D) 10 E) 9



26.  $\frac{\sqrt{3} - \sqrt{2} - 1}{1} = x\sqrt{6} + y\sqrt{2} + z \Rightarrow x + y + z = ?$

- A) -2 B) -1 C) 1 D)  $1 + \sqrt{2}$  E)  $\sqrt{6}$

$x \in \mathbb{Z}/5$   $\left(\frac{1}{1}\right)_5 + \left(\frac{4}{1}\right)_5 + \left(\frac{3}{1}\right)_7 + 3^{15} = x \pmod{5}$

$x = ?$

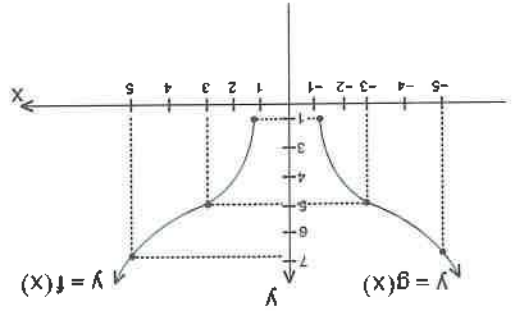
- A) 0 B) 1 C) 2 D) 3 E) 4

27.  $\frac{2x + y + z}{4} = \frac{2x - y + z}{3} = \frac{y - z}{2} \Rightarrow \frac{z}{y} = ?$

- A)  $-\frac{3}{1}$  B)  $\frac{2}{1}$  C)  $\frac{3}{1}$  D)  $\frac{3}{2}$  E)  $\frac{4}{1}$

28.  $x \Delta y = 3x - y - 3(y \Delta x) \Rightarrow 2 \Delta 1 = ?$

- A)  $-\frac{4}{3}$  B)  $-\frac{1}{1}$  C)  $\frac{1}{4}$  D)  $\frac{4}{3}$  E)  $\frac{4}{5}$



Gratige göre  $f(3) + (f \circ g)(-3) = ?$   
 According to the graph  $f(3) + (f \circ g) = ?$

- A) 2 B) 6 C) 10 D) 14 E) 16

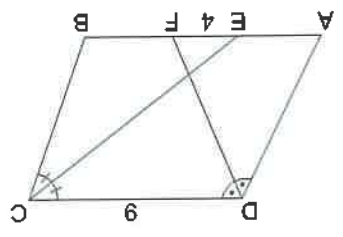
30.  $f(x) = \frac{x+5}{5x}$  ve  $f(x-2) = \frac{5x-b}{5x-a}$

$\Rightarrow a+b = ?$

- A) 27 B) 13 C) 12 D) 11 E) 9

2.

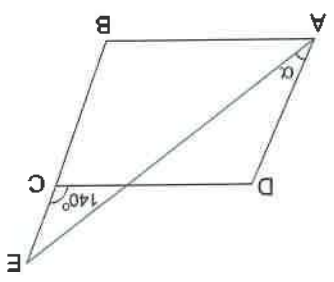
ABCD paralelkenar  
 [DF] ve [EC] açıortay  
 [DF] and [EC] bisector  
 $|EF| = 4,$   
 $|DC| = 9,$   
 $\hat{C}(ABCD) = ?$



- A) 29 B) 30 C) 31 D) 32 E) 33

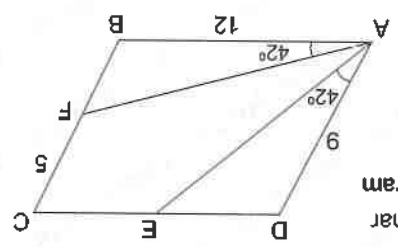
1.

ABCD paralelkenar  
 $|BE| = |CD|$   
 $m(\widehat{DCE}) = 140^\circ$   
 $\Rightarrow \alpha = ?$



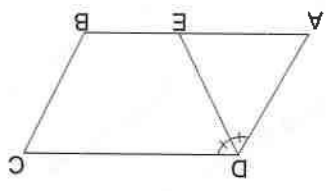
- A) 20 B) 25 C) 30 D) 40 E) 50

5. ABCD paralelkenar  
 $m(\widehat{DAE}) = 42^\circ$   
 $m(\widehat{BAF}) = 42^\circ$   
 $|CF| = 5$   
 $|AD| = 9$   
 $|AB| = 12$   
 $|EC| = ?$



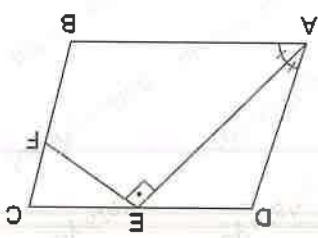
- A) 5 B) 6 C) 7 D) 8 E) 9

4. ABCD paralelkenar  
 $[DE]$  agortay  
 $[DE]$  bisektor  
 $|AD| = 5$   
 $\widehat{C(ABCD)} = 28$   
 $|EB| = ?$



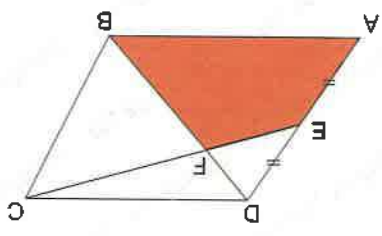
- A) 1 B) 2 C) 3 D) 4 E) 5

3. ABCD paralelkenar  
 $[AE] \perp [EF]$   
 $[AE]$  bisektor  
 $[AE]$  agortay  
 $|DE| = 5$   
 $|FB| = 1$   
 $|EC| = ?$



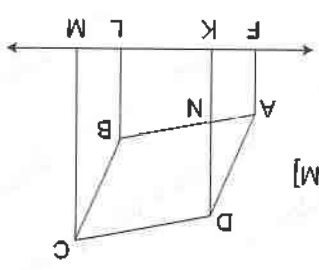
- A) 1 B) 2 C) 3 D) 4 E) 5

8. ABCD paralelkenar  
 $|DE| = |EA|$   
 $A(\widehat{BC}) = 4 \text{ cm}^2$   
 $A(\widehat{ABFE}) = ?$



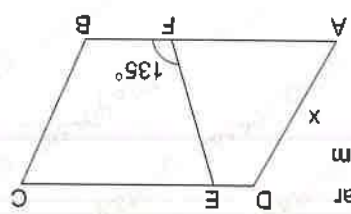
- A) 3 B) 4 C) 5 D) 6 E) 7

7. ABCD paralelkenar  
 $[AF] \parallel [DK] \parallel [BL] \parallel [CM]$   
 $|AF| = 3$   
 $|BL| = 4$   
 $|CM| = 9$   
 $[DK] = x = ?$



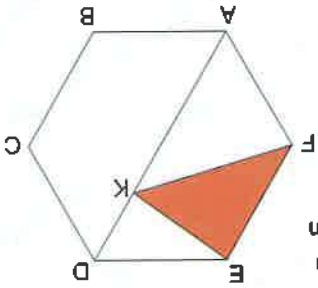
- A) 8 B) 9 C) 10 D) 11 E) 16

6. ABCD paralelkenar  
 $m(\widehat{EFB}) = 135^\circ$   
 $|FB| = 5$   
 $|EC| = 12$   
 $|EF| = 3\sqrt{2}$   
 $x = ?$



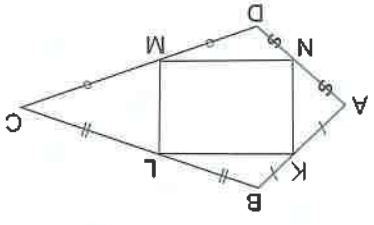
- A) 3 B) 4 C) 5 D) 6 E) 7

- A)  $3\sqrt{3}$  B)  $4\sqrt{3}$  C)  $6\sqrt{3}$  D)  $9\sqrt{3}$  E)  $12\sqrt{3}$



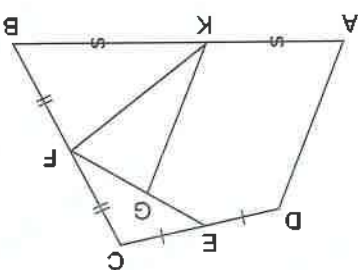
14. ABCDEF düzğün altigen  
 ABCDEF regular hexagon  
 $|CD| = 6 \text{ cm}$   
 $A(\triangle EFK) = ?$

- A) 10 B) 11 C) 12 D) 13 E) 14



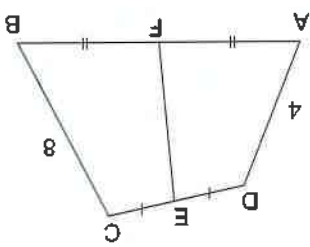
13. ABCD dörtgen  
 ABCD quadrilateral  
 K, L, M, N orta noktalar  
 K, L, M, N are midpoints  
 $A(\triangle KLM) = 7$   
 $A(\triangle DNM) = 3$   
 $A(\triangle ABCD) = 44$   
 $A(\triangle ANK) + A(\triangle CLB) = ?$

- A) 40 B) 45 C) 50 D) 55 E) 60



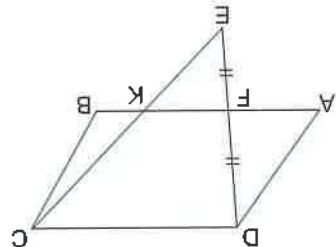
12. ABCD dörtgen  
 ABCD quadrilateral  
 E, F, K orta noktalar  
 E, F, K are midpoints  
 $|GF| = 2|EG|$   
 $A(\triangle FKG) = 10 \text{ cm}^2$   
 $A(\triangle ABCD) = ?$

- A) 5 B)  $2\sqrt{6}$  C)  $2\sqrt{7}$  D) 6 E) 7



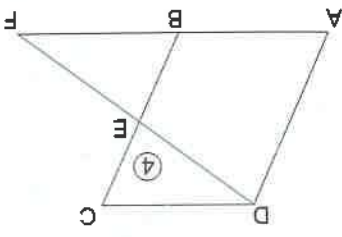
11. ABCD dörtgen  
 ABCD quadrilateral  
 $m(\angle DAB) + m(\angle ABC) = 120^\circ$   
 $|DE| = |EC|$   
 $|AF| = |FB|$   
 $|AD| = 4$   
 $|BC| = 8$   
 $|EF| = ?$

- A) 28 B) 30 C) 32 D) 40 E) 45

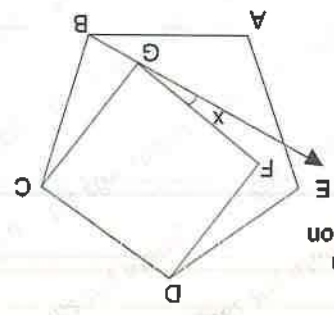


10. ABCD paralelkenar  
 ABCD parallelogram  
 $|DF| = |FE|$   
 $A(\triangle CBK) = 1 \text{ cm}^2$   
 $A(\triangle ADF) = 7 \text{ cm}^2$   
 $A(\triangle CDE) = ?$

- A) 8 B) 9 C) 10 D) 11 E) 12

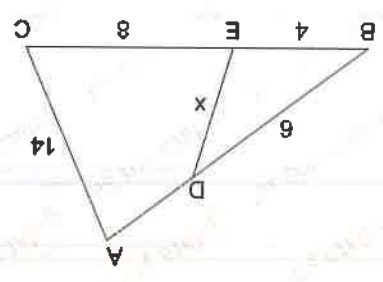


9. ABCD paralelkenar  
 ABCD parallelogram  
 $A(\triangle CDE) = 4 \text{ cm}^2$   
 $A(\triangle BED) = 16 \text{ cm}^2$   
 $A(\triangle EBF) = ?$



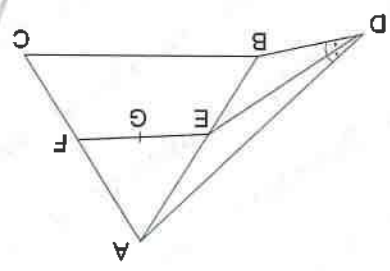
15. ABCDE düzgun beşgen  
 ABCDEF regular pentagon  
 CDFG kare  
 CDFG square  
 $x = ?$

- A) 9 B) 10 C) 12 D) 18 E) 19



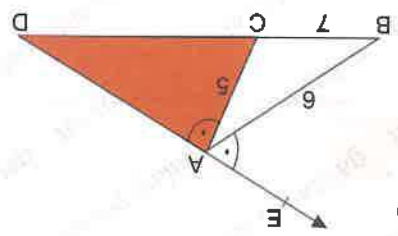
18. ABC bir üçgen  
 ABC triangle  
 $|AC| = 14$   
 $|AB| = 6$   
 $|BC| = 8$   
 $x = ?$

- A) 6 B) 7 C) 8 D) 9 E) 10



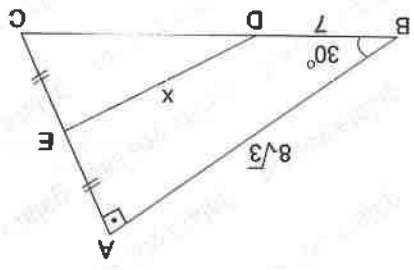
19.  $[AB] \perp [CD]$   
 I: iç teğet çemberin merkezi  
 I: center of the inner  
 tangent circle  
 $\frac{|CI|}{|DI|} = ?$

- A)  $\frac{2}{3}$  B)  $\frac{1}{2}$  C)  $\frac{3}{1}$  D) 1 E)  $\frac{2}{3}$



20.  $m(\widehat{BAE}) = m(\widehat{CAD})$   
 $|AC| = 5$   
 $|AB| = 6$   
 $|BC| = 7$   
 $A(\widehat{ACD}) = ?$

- A)  $30\sqrt{6}$  B)  $35\sqrt{6}$  C)  $40\sqrt{6}$  D)  $45\sqrt{6}$  E)  $50\sqrt{6}$



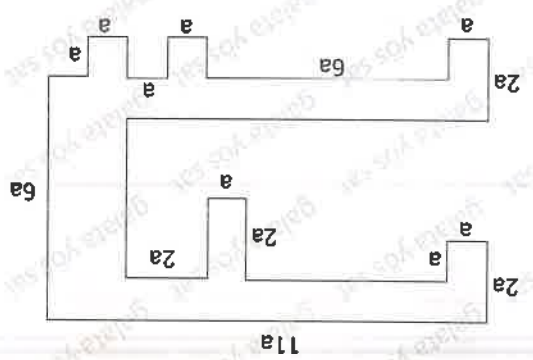
21.  $[AB] \perp [AC]$   
 $m(\widehat{ABC}) = 30^\circ$   
 $|BD| = 7$   
 $|AB| = 8\sqrt{3}$   
 $x = ?$

- A)  $2\sqrt{15}$  B)  $\sqrt{61}$  C)  $\sqrt{65}$  D)  $7\sqrt{2}$  E)  $7\sqrt{3}$





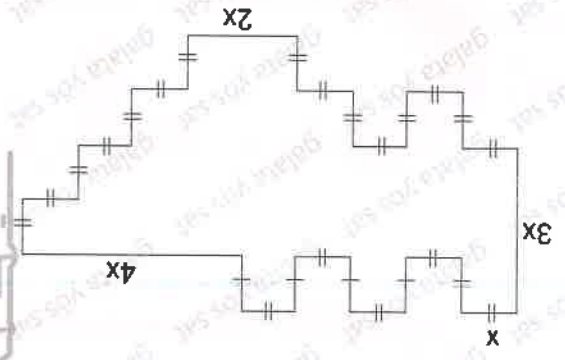
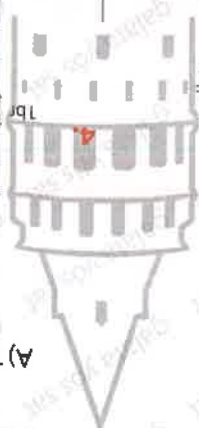
10



Çevre = ? a  
The perimeter = ? a

- A) 64 B) 65 C) 66 D) 67 E) 68

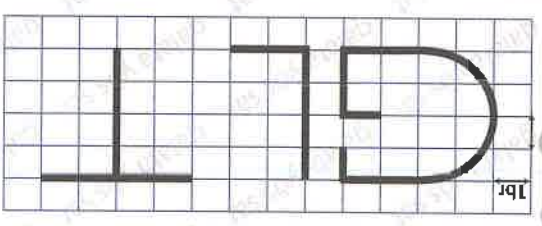
1.



Çevre = ?  
The perimeter = ?

- A) 33 B) 34 C) 35 D) 36 E) 37

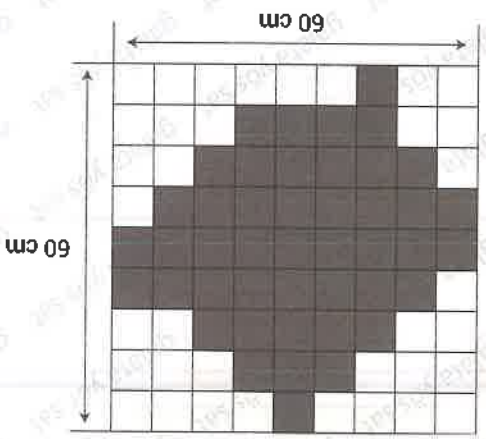
2.



Tel parçalarıyla oluşturulan yukarıdaki Latin harflerinin toplam uzunluğu kaç birimdir?  
How many units is the total length of the Latin letters above created with wire pieces?

- A)  $22 + 2\pi$  B)  $22 + 4\pi$  C)  $20 + 2\pi$   
D)  $20 + 4\pi$  E)  $24 + 4\pi$

Yükarıda verilen şekilde boyutları 60 cm ve 60 cm ve tüm kenarları birbirine dik olduğuna göre taraflı bölgenin çevresi kaç cm'dir?  
The dimensions given above are 60 cm and 60 cm and all sides are perpendicular to each other, how many cms are the perimeter of the shaded area?

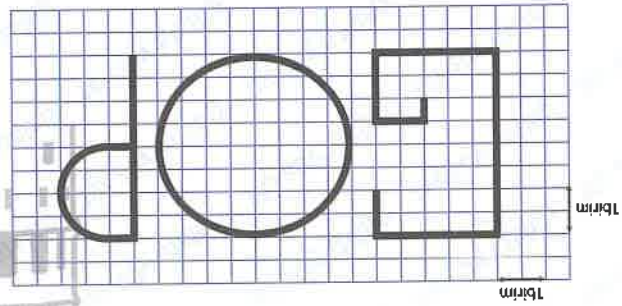


3.



6.

Tel parçalarıyla oluşturan harflerin toplam uzunluğu kaç birimdir?  
How many units is the total length of the letters formed by wire pieces?



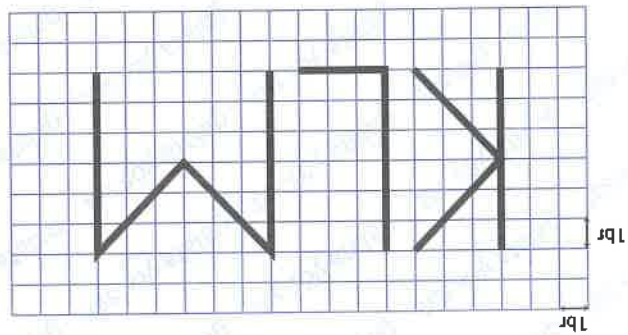
C) 42

A)  $27 + 12\sqrt{2}$ 

B) 39

D)  $25 + 10\sqrt{2}$ E)  $20\sqrt{2}$ 

Tel parçalarıyla oluşturan harflerin toplam uzunluğu kaç birimdir?  
How many units is the total length of the letters formed by wire pieces?



5.

Tel parçalarıyla oluşturan harflerin toplam uzunluğu kaç birimdir?  
How many units is the total length of the letters formed by wire pieces?

C)  $18 + \frac{9\pi}{2}$ B)  $20 + 4\pi$ E)  $36 + 16\pi$ D)  $30 + 16\pi$ 

A) 80

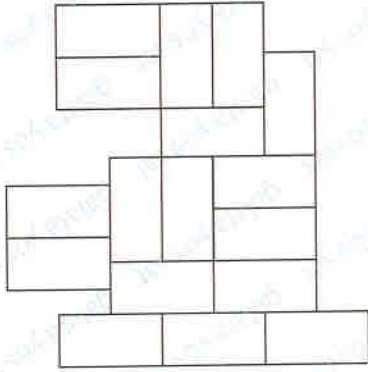
B) 76

C) 75

D) 74

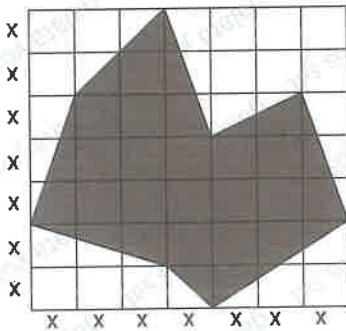
E) 68

Alan  $136 \text{ m}^2$  olan yukarıdaki şeklin çevresi kaç metredir?  
The area of above figure is  $136 \text{ m}^2$  what is the perimeter?



7.

Taralı Alan = ?  
Shaded Area = ?



B) 23

A) 22,5

C) 23,5

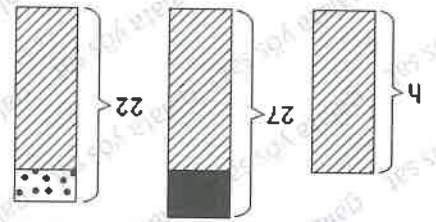
D) 24

E) 25,5

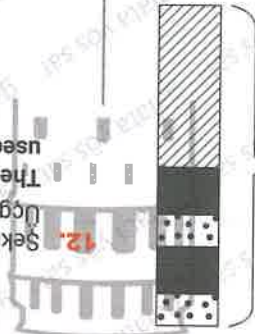
10.

- A) 16 B) 17 C) 18 D) 19 E) 20

$\Rightarrow h = ?$

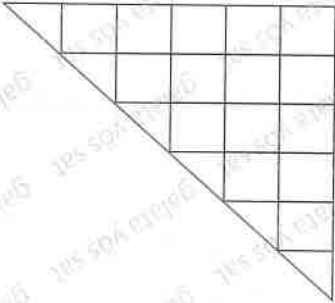


47



12. Sekilde gösterilen birim ile üçgen kaplanmaktadır. Üçgen bu birim karelerden kaç tanesi ile kaplanmıştır? The triangle is covered by unit. How many units are used to cover the triangle?

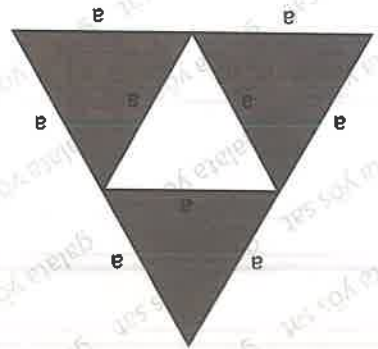
Birimkare (Unit)



- A) 15 B) 16 C) 17 D) 18 E) 19

9.

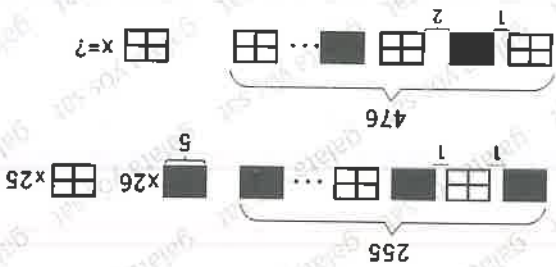
Taralı Alan = ? a<sup>2</sup>  
The shaded area = ? a<sup>2</sup>



- A)  $\frac{2}{\sqrt{3}}$  B)  $\frac{4}{\sqrt{3}}$  C)  $\frac{3\sqrt{3}}{4}$  D)  $\frac{5\sqrt{3}}{2}$  E)  $2\sqrt{3}$

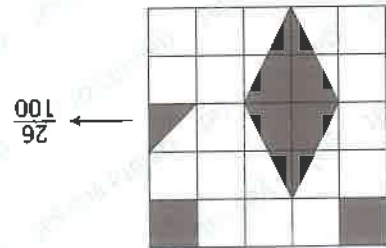
- A) 39 B) 40 C) 44 D) 45 E) 46

Beyaz kutudan kaç tane vardır? How many white boxes are there?

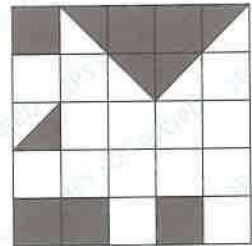


11.

13.



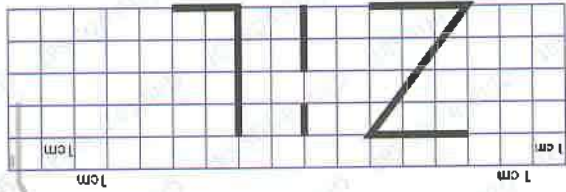
x



Bu ilişkiye göre x kaç olmalıdır ?  
What should be x according to this relation?

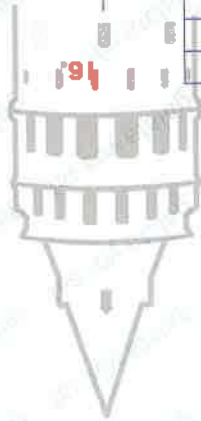
- A)  $\frac{100}{29}$  B)  $\frac{100}{30}$  C)  $\frac{100}{34}$  D)  $\frac{100}{40}$  E)  $\frac{100}{42}$

14.

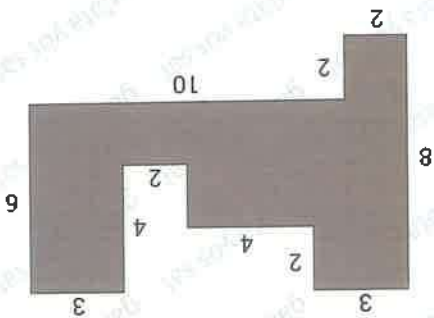


Tel parçalarıyla yapılmış 'zil' kelimesinde kaç cm tel kullanılmıştır ?  
How many cms wires are used in the word "Zil" made with wire pieces?

- A) 18 B) 13 C) 20 D) 21 E) 22



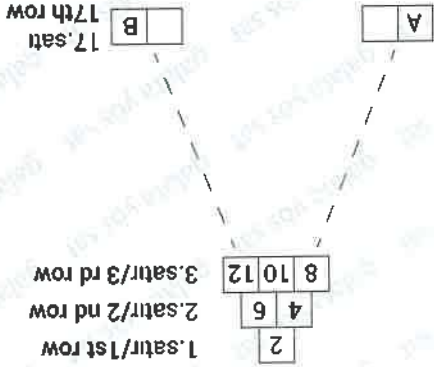
15.



Şeklin alanı kaç birim karedir ?  
How many square units is the area of the shape?

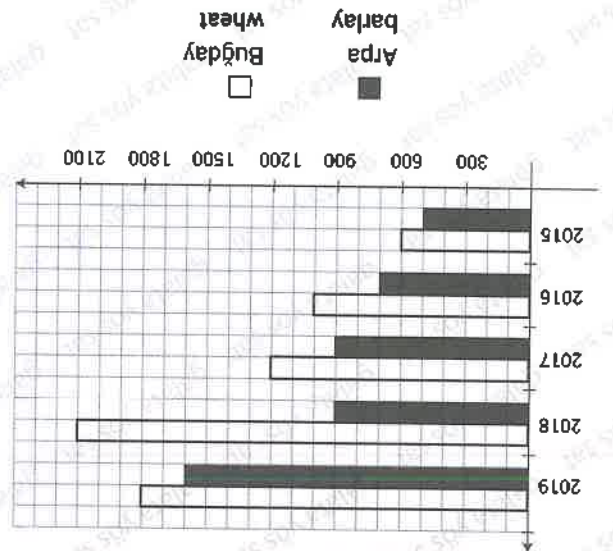
- A) 55 B) 60 C) 65 D) 70 E) 75

A+B=?



- A) 506 B) 580 C) 590 D) 618 E) 726

17 - 18 sorularını aşağıdaki tabloya göre cevaplayınız.  
Answer questions 17 - 18 according to the table below.



17. Buğdayın max üretimi hangi yılda olmuştur ?  
In which year was the max production of wheat ?  
A) 2015 B) 2016 C) 2017 D) 2018 E) 2019

18. Arpa'nın üretimi 2018 yılında 2015 yılına göre yüzde kaç artmıştır ?  
How much did barley production increase in 2018 compared to 2015?  
A) 100 B) 80 C) 60 D) 40 E) 20

20.

$$= K \cdot L + P^2 \cdot M + L^3 P$$

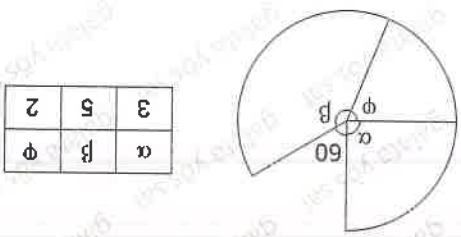
K	L	M	P
3	0	4	A

= 100

$$\Rightarrow A = ?$$

- A) 1 B) 2 C) 3 D) 4 E) 5

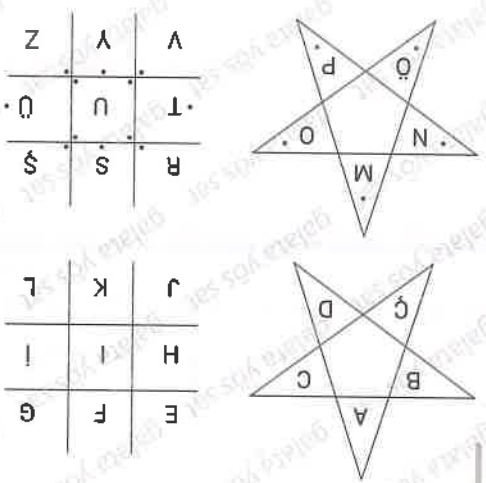
19.



alpha, % kaçtır ? / what is the alpha percentage?

- A) 10 B) 25 C) 30 D) 40 E) 50

Özellik Feature



Aşağıdaki 21. ve 22. sorularını yukarıdaki verilere göre cevaplayınız.

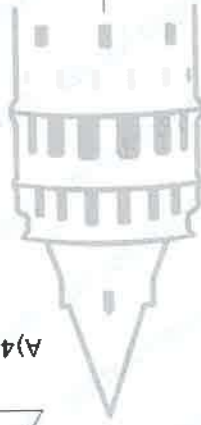
Answer questions 21 and 22 below according to the above data.



A) 56 B) 59 C) 61 D) 63 E) 67

8	?	1
2	45	3
3	94	1
4	39	5
1		2

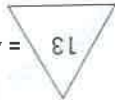
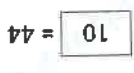
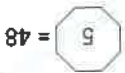
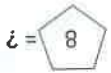
26.



25.

$\triangle = 42$      $\square = 44$      $\text{pentagon} = 48$      $\text{hexagon} = ?$

A) 45 B) 55 C) 66 D) 77 E) 88



A) 130 B) 131 C) 151 D) 162 E) 174

23. 6, 21, 37, 55, 76, 101, ?

A) YARDIMCI  
B) YAPIMLIK  
C) YARENLIK  
D) YAZARLIK  
E) SAVURGAN

22. 22.

A) E)

B) D)

C) C)

B) B)

A) A)

21. ÖZGÜRLÜK

62  $\hat{O}$  84 = 5  
 26  $\hat{O}$  46 = 1  
 41  $\hat{O}$  22 = 5  
 83  $\hat{O}$  13 = ?

24.

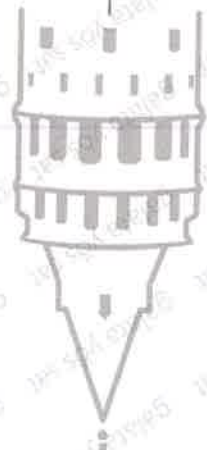
A) 0 B) 1 C) 2 D) 3 E) 4

28.

9	45	5	C
2	3	B	1
6	A	10	3
3	5	4	3

C-A-B=?

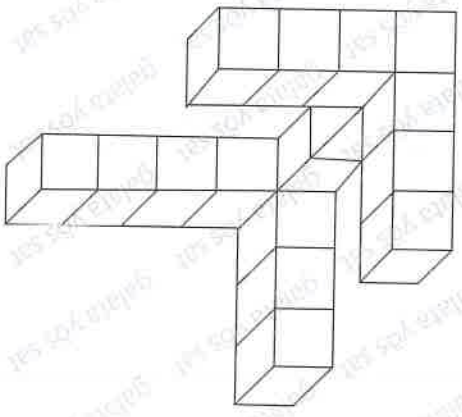
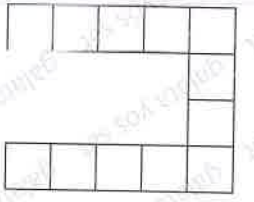
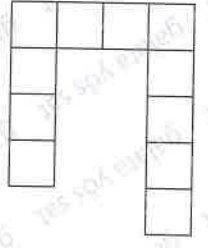
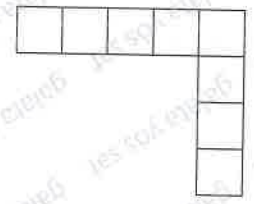
- A) 27 B) 25 C) 23 D) 22 E) 20



III

II

I



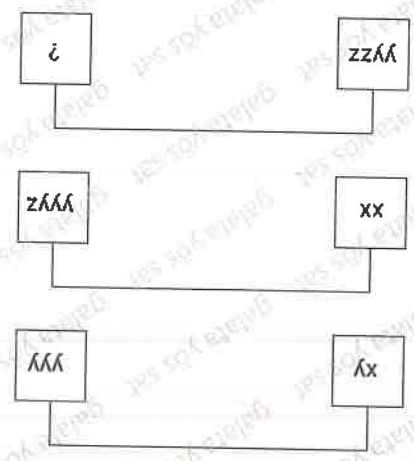
Which of the drawings in different perspectives of the figure below is correct?

Aşağıdaki görüntüsü verilen bir yapının farklı yönlere göre çizimlerinden hangisi doğrudur?

29.

27.

- A) xx B) xxx C) xxx D) yyy E) xxxy

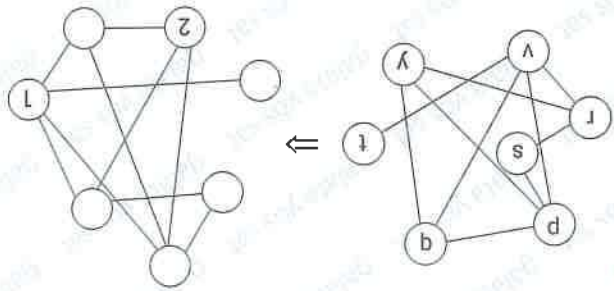


III

II

I

30.



1, 2 = ?

- A) b,q B) v,y C) v,q D) p,r E) s,y

3. Aşağıdakilerden kaç tanesi doğrudur ?  
How many of the following are true?

- I.  $\cos\left(\frac{7\pi}{2} + x\right) = \sin x$   
 II.  $\cos(-5\pi - x) = -\cos x$   
 III.  $\tan\left(\frac{3\pi}{2} - x\right) = \cot x$   
 IV.  $\cot\left(\frac{\pi}{2} - x\right) = \tan x$   
 V.  $\sin(x - 3\pi) = \sin x$

- A) 1 B) 2 C) 3 D) 4 E) 5

## Matematik Maths

1.  $\frac{\cos 90^\circ + \sin 540^\circ + \tan 360^\circ}{\sin 270^\circ + \cos 180^\circ} = ?$

- A) -1 B) 0 C) 1 D) 2 E) 3  
 A)  $2 \sin x$  B)  $3 \cos x$  C) 2 D) 1 E) -1

4.  $\frac{\sin^2 x}{1 + \cos x} + \frac{1 - \cos x}{\sin^2 x} = ?$

5.  $A = \sin^2 x + \cos^2 x$   
 $B = \tan x \cdot \cot x$   
 $\Rightarrow A + B = ?$

- A) -1 B) 0 C) 1 D) 2 E) 3

List the sign of A,B,C.

A =  $\sin 3620^\circ$   
 B =  $\cos 7210^\circ$   
 C =  $\tan 1453^\circ$

- A) +, +, - B) -, +, - C) +, -, - D) -, -, - E) +, +, +



6. ABC üçgeninde  
For the ABC triangle

$$\frac{\sin(A+B) + \sin C}{\cos(A+B) - \cos C} = ?$$

- A)  $\sin C$
- B)  $\cot C$
- C)  $-\tan C$
- D)  $-\cot C$
- E)  $-\sec C$

7.  $0 < x < \frac{\pi}{2}$

$$\sqrt{1 + \sin(2x)} - \cos^2 x - \sin^2 x = ?$$

- A) -1
- B) 0
- C) 1
- D)  $\cot x$
- E)  $\tan x$

8.  $\frac{1}{5} f(x) = 2x - 3, g(x) = x^2 + 3x + 5$   
 $\Rightarrow (f^{-1} \circ g)(3) = ?$

- A) 3
- B) 4
- C) 2
- D) 1
- E) 0

$$\frac{0,2 - \frac{0,2}{0,2}}{0,2 - \frac{0,2}{0,2}} = ?$$

- A) 0,04
- B)  $\frac{99}{4}$
- C) 0,04
- D)  $\frac{99}{8}$
- E) 0,08



13.  $x^2 - 4x + 1 = 0, S.S. = \{x_1, x_2\}$   
 $\Rightarrow x_1^2 + 4x_2 - 4 = ?$

- A) 8
- B) 9
- C) 10
- D) 11
- E) 12

12.  $a = \sqrt{2} + 1 \Rightarrow a(a-1)(a-2) = ?$

- A)  $\sqrt{2}$
- B)  $-\sqrt{2}$
- C)  $3 - 2\sqrt{2}$
- D)  $3 + 2\sqrt{2}$
- E) 1

11.  $(-x)^5 \cdot (-x^3)^2 \cdot x^{-12} \cdot (-x)^{-3} = ?$

- A)  $\frac{x^2}{1}$
- B)  $-x^2$
- C)  $\frac{x^4}{1}$
- D)  $\frac{x^3}{1}$
- E)  $x^4$

10.  $\frac{|2x+10|}{|x| + |2x+3| + |2|x-1|}$

İfadeşinin en büyük değeri kaçtır ?  
 what is the highest value of the expression ?

- A)  $\frac{1}{2}$
- B)  $\frac{2}{3}$
- C) 2
- D)  $\frac{2}{5}$
- E) 5

14.  $x^2 - (m+3)x - 5 = 0$ ,  $S.S = \{x_1, x_2\}$   
 $\sqrt{x_1^2 + 2x_1 \cdot x_2 + x_2^2} \leq 4 \Rightarrow \sum m = ?$

- A) -32 B) -27 C) -24 D) -21 E) -17

15.  $x^8 - x^7 - 6x^6 < 0 \Rightarrow \sum x = ?$

- A) -2 B) -1 C) 0 D) 1 E) 2

16.  $\frac{x+3}{(x-2)(x+1)} \leq 0 \Rightarrow S.S = ?$

- A)  $(-\infty, -3] \cup [-1, 2)$   
 B)  $(-\infty, -3) \cup (0, 2)$   
 C)  $(-\infty, -3) \cup [-1, 2]$   
 D)  $(-3, 2)$   
 E)  $(-\infty, -2) \cup (-1, 3]$

17.  $2x \cdot (x^3 - x^2 - 20x)^2 \leq 0$ ,  $S.S = \{x_1, x_2, \dots, x_n\}$   
 $\Rightarrow n = ?$

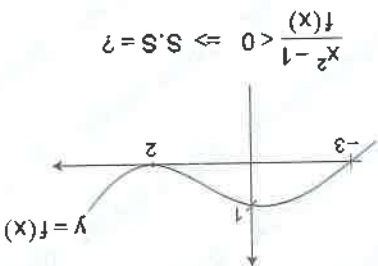
- A) 1 B) 2 C) 3 D) 4 E) 5

18.

$\frac{|x^2 - 9|}{x^2 - 4x + 4} \leq 0$ ,  $S.S = \{x_1, x_2, \dots, x_n\}$   
 $\Rightarrow n = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

19.



$\frac{x^2 - 1}{f(x)} < 0 \Rightarrow S.S = ?$

- A)  $(-\infty, -3) \cup (2, \infty)$   
 B)  $(-3, 2)$   
 C)  $(-3, 2] - \{1\}$   
 D)  $(-\infty, -3) \cup (-1, 1)$   
 E)  $(-\infty, -1) \cup (1, 3)$

20.  $\frac{x}{y} \cdot \frac{y+z}{x+z} = \frac{y}{z}$ ,  $x \cdot y \cdot z = 12$   
 $\Rightarrow (y+z) \cdot (x+z) \cdot (x+y) = ?$

- A) 24 B) 36 C) 48 D) 72 E) 96

21.  $\frac{5x+3}{x^2-7x+12} = \frac{A}{x-3} + \frac{B}{x-4}$

$\Rightarrow A+B=?$

- A) 4 B) 5 C) 6 D) 7 E) 8

24.  $x_1, x_2 \in \mathbb{R}$  SS:  $\{x_1, x_2\}$

$x^2+5x-7=0$

$\Rightarrow x_1^3+5x_1^2-4x_1+x_2^3+x_2^2-4x_2=?$

- A) 5 B) 10 C) 15 D) 20 E) 25

22.  $(x^3+3x+1)^2 = ax^6+bx^5+cx^4+dx^3+ex^2+fx+h$   
 $a+c+e+h=?$

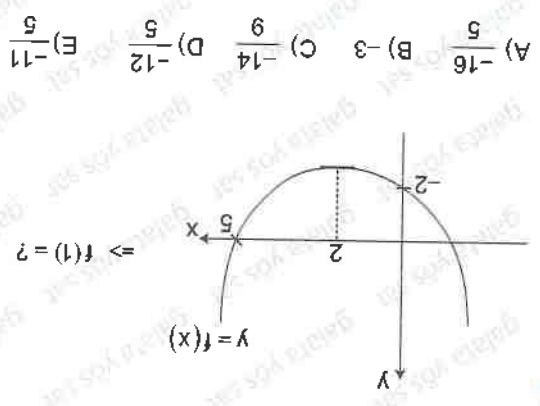
- A) 14 B) 15 C) 16 D) 17 E) 18

23.  $x^2-4x+1=0$ , S.S =  $\{m, n\}$

$\Rightarrow \frac{m^2}{n^2} + \frac{n^2}{m^2} = ?$

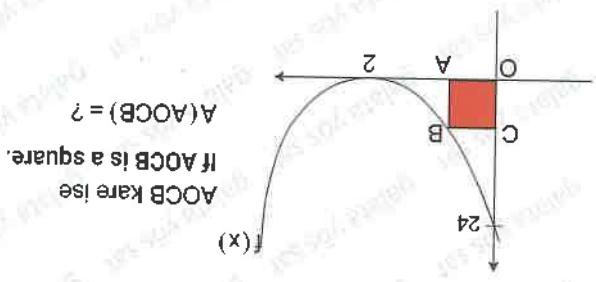
- A) 12 B) 24 C) 36 D) 48 E) 52

26.



- A)  $-\frac{5}{16}$  B)  $-3$  C)  $-\frac{9}{14}$  D)  $-\frac{5}{12}$  E)  $-\frac{5}{11}$

25.



AOCB kare ise  
 If AOCB is a square,  
 $A(AOCB) = ?$

- A)  $\frac{4}{1}$  B)  $\frac{8}{1}$  C)  $\frac{16}{1}$  D)  $\frac{4}{9}$  E)  $\frac{64}{9}$

27.  $A = [-3, 7]$ ,  $B = [3, 10]$  ve  $C = (-5, 4)$   
 $\Rightarrow (A \cup B) - C = ?$

- A)  $(-3, 4)$
- B)  $(3, 4)$
- C)  $[4, 10)$
- D)  $(-5, 3)$
- E)  $(-5, 3]$

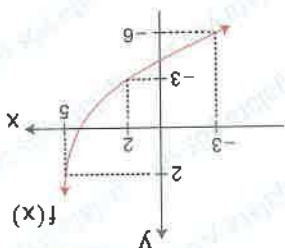
28.  $xy + y - x + 2 = 0 \Rightarrow f(x) = ?$

- A)  $\frac{x-2}{x+1}$
- B)  $\frac{x-1}{x+1}$
- C)  $\frac{x-2}{x+1}$
- D)  $\frac{2-x}{x+1}$
- E)  $\frac{2-x}{x}$

29.  $a, b, c \in \mathbb{N}$   
 $x = 3^2 \cdot 2^3 \cdot 5^2$ ,  $y = 3^2 \cdot 2^2 \cdot 5$ ,  $z = 3^3 \cdot 2^4 \cdot 5^3$   
 $OKEK(x, y, z) = 3600$ ,  $OBEB(x, y, z) = 36$   
 $\Rightarrow a + b + c = ?$

- A) 6
- B) 7
- C) 8
- D) 9
- E) 10

30.

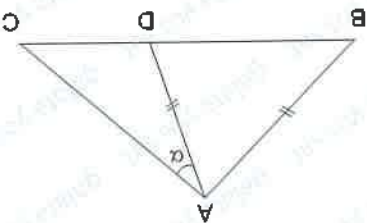


$f[f[f(3x-4)]] = -6$   
 $\Rightarrow x = ?$

- A) 5
- B) 3
- C) 2
- D) -2
- E) -3

1.

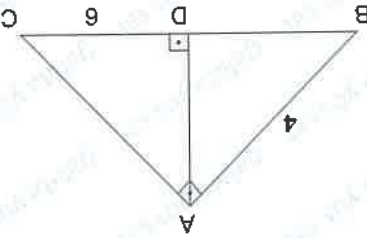
$[AB] \perp [AC]$   
 $m(\angle ACB) = 40^\circ$   
 $|AB| = |AD|$   
 $\Rightarrow \alpha = ?$



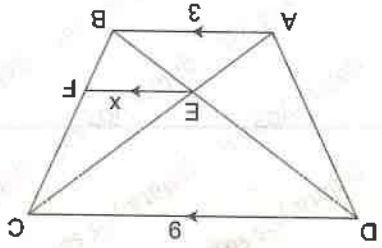
- A) 10
- B) 20
- C) 30
- D) 40
- E) 50

2.

ABC bir üçgen  
 $[AB] \perp [AC]$   
 $[AD] \perp [BC]$   
 $|AB| = 4 \text{ cm}$   
 $|CD| = 6 \text{ cm}$   
 $A(\triangle ABC) = ?$

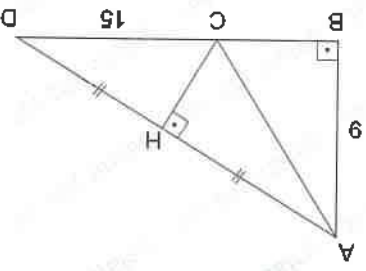


- A)  $4\sqrt{3}$
- B)  $6\sqrt{3}$
- C)  $8\sqrt{3}$
- D)  $9\sqrt{3}$
- E)  $10\sqrt{3}$



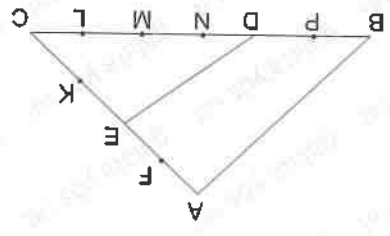
3.  $[AB] \parallel [EF] \parallel [CD]$   
 $|AB| = 3 \text{ cm}$   
 $|CD| = 9 \text{ cm}$   
 $|EF| = x = ?$

- A) 2    B)  $\frac{4}{9}$     C) 3    D) 6    E) 12



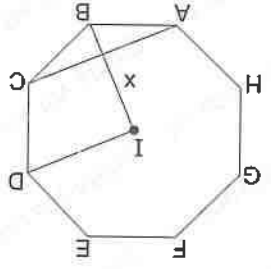
4. ABC bir üçgen  
 $ABC \triangleq$  triangle  
 $[AB] \perp [BD]$   
 $[AD] \perp [CH]$   
 $|AH| = |HD|$   
 $|AB| = 9 \text{ cm}$   
 $|CD| = 15 \text{ cm}$   
 $|AD| = ?$

- A)  $9\sqrt{10}$     B)  $10\sqrt{10}$     C)  $12\sqrt{10}$     D)  $14\sqrt{10}$     E)  $19\sqrt{10}$



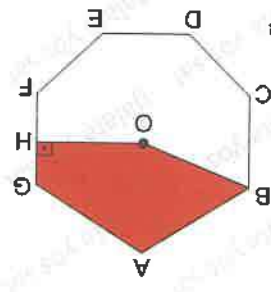
5. ABC bir üçgen / ABC triangle  
 $|AF| = |FE| = |EK| = |KC|$   
 $|BP| = |PD| = |DN| = |NM| = |ML| = |LC|$   
 $\frac{A(DEC)}{A(ABDE)} = ?$

- A)  $\frac{1}{3}$     B)  $\frac{1}{2}$     C)  $\frac{2}{3}$     D) 1    E)  $\frac{3}{4}$



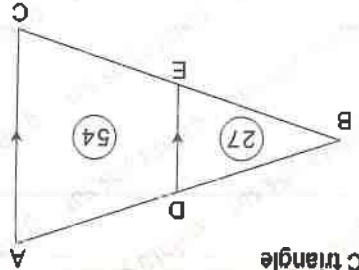
7. ABCDEFGH düzgen  
 sekizgen  
 ABCDEFGH regular  
 octagon  
 I : içteğel gembenin merkezi :  
 center of the inner tangent circle  
 $|AC| = 5\sqrt{2} \text{ cm}$   
 $|IB| = x = ?$

- A) 2    B) 3    C) 4    D) 5    E) 7



8. ABCDEFG düzgen  
 yedigen  
 ABCDEFG regular heptagon  
 O : ağırlık merkezi  
 center of gravity  
 $A(ABOHG) = 25 \text{ cm}^2$   
 $A(ABCFEG) = ? \text{ cm}^2$

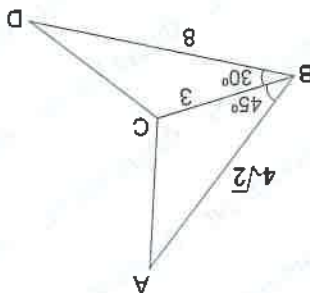
- A) 50    B) 60    C) 70    D) 80    E) 85



6. ABC bir üçgen / ABC triangle  
 $[DE] \parallel [AC]$   
 $|BE| = x \text{ cm}$   
 $|EC| = y \text{ cm}$   
 $A(BDE) = 27 \text{ cm}^2$   
 $A(ADCE) = 54 \text{ cm}^2$   
 $\frac{y}{x} = ?$

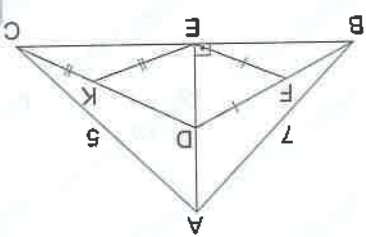
- A)  $\frac{\sqrt{3}-1}{2}$     B)  $\frac{\sqrt{3}}{2}$     C)  $\frac{\sqrt{3}+1}{2}$     D)  $\frac{\sqrt{3}+2}{2}$     E)  $\frac{\sqrt{3}-2}{2}$

9.  $\widehat{A(CBD)} = 30^\circ$   
 $m(\widehat{ABC}) = 45^\circ$   
 $|BC| = 5$   
 $|AB| = 4\sqrt{2}$   
 $|BD| = 8$   
 $A(ABDC) = ?$



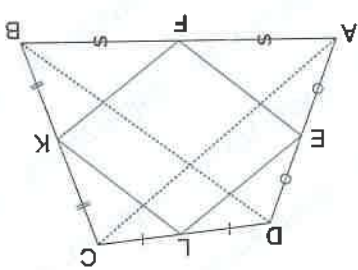
- A) 10 B) 12 C) 14 D) 20 E) 22

10.  $[AE] \perp [BC]$   
 $|FD| = |EF|$   
 $|EK| = |KC|$   
 $|AC| = 5$   
 $|AB| = 7$   
 $|EF| = b$   
 $|EK| = a$   
 $b^2 - a^2 = ?$



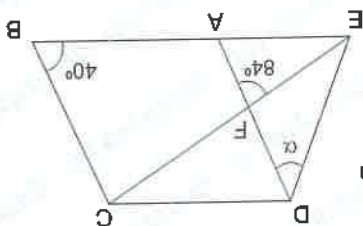
- A) 2 B) 6 C) 8 D) 10 E) 12

11. ABCD dörtgen  
 E, F, K, L orta noktalar  
 E, F, K, L midpoints  
 $|BD| = 7$  cm  
 $|AC| = 13$  cm  
 $G(EFKL) = ?$



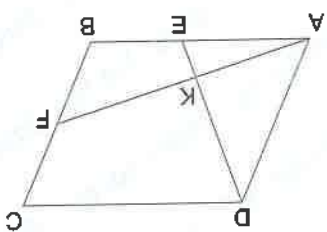
- A) 20 B) 23 C) 31 D) 38 E) 43

12. ABCD paralelkenar  
 $|AB| = |CE|$   
 $m(\widehat{ABC}) = 40^\circ$   
 $m(\widehat{EFA}) = 84^\circ$   
 $m(\widehat{EDA}) = \alpha = ?$



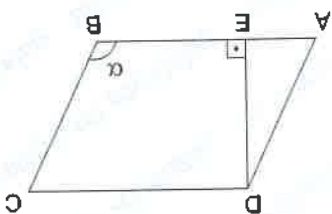
- A) 20 B) 24 C) 25 D) 30 E) 33

13. ABCD paralelkenar  
 $2|CF| = 3|BF|$   
 $|AE| = |EB|$   
 $|AF| = 24$  cm  
 $|KF| = ?$



- A) 8 B) 10 C) 12 D) 13 E) 14

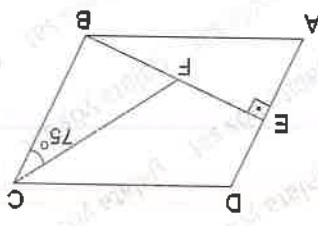
14. ABCD paralelkenar  
 $[DE] \perp [AB]$   
 $|DE| = \sqrt{15}$  cm  
 $|AE| = \sqrt{5}$  cm  
 $\alpha = ?$



- A) 102 B) 120 C) 125 D) 126 E) 133

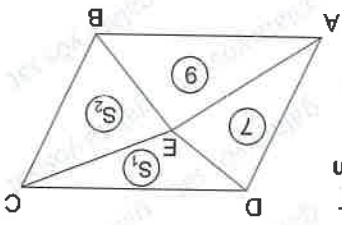


15. ABCD paralelkenar  
 $[DA] \perp [EB]$   
 $|FB| = 2|EF|$   
 $m(\angle BCF) = 75^\circ$   
 $|FC| = 16 \text{ cm}$   
 $A(ABCD) = ?$



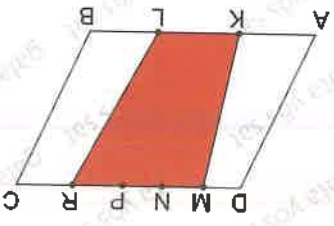
- A) 45 B) 50 C) 60 D) 75 E) 96

16. ABCD paralelkenar  
 $A(\triangle ADE) = 7 \text{ cm}^2$   
 $A(\triangle ABE) = 9 \text{ cm}^2$   
 $S_2 - S_1 = ?$



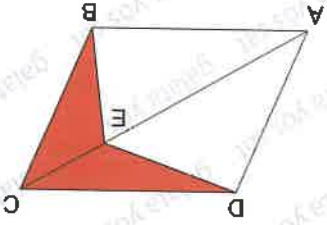
- A) 2 B) 3 C) 4 D) 5 E) 6

18. ABCD paralelkenar  
 $|DM| = |MN| = |NP| = |PR| = |RC|$   
 $|AK| = |KL| = |LB|$   
 $A(KLRM) = 14 \text{ cm}^2$   
 $A(ABCD) = ?$



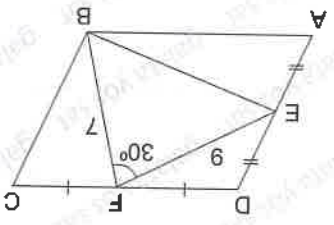
- A) 20 B) 24 C) 28 D) 30 E) 32

19. ABCD paralelkenar,  
 $\angle C$  köşegen  
 $\angle A$  diagonal  
 $m(\angle AEB) = 45^\circ$   
 $|AC| = 7|EC| = 7 \text{ cm}$   
 $|EB| = 4 \text{ cm}$   
 $A(\triangle BEC) = ?$



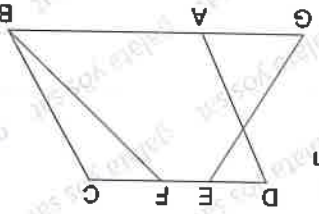
- A) 49 B) 28 C)  $7\sqrt{2}$  D)  $3\sqrt{2}$  E)  $2\sqrt{2}$

17. ABCD paralelkenar  
 $E$  ve  $F$  orta noktalar  
 $E$  ve  $F$  are midpoints  
 $|FB| = 7 \text{ cm}$   
 $|EF| = 9 \text{ cm}$   
 $m(\angle FBE) = 30^\circ$   
 $A(ABCD) = ?$



- A) 30 B) 40 C) 42 D) 45 E) 56

20. ABCD paralelkenar  
 $|CD| = 5|GA|$   
 $|EF| = 2|GA|$   
 $A(\triangle GFE) = 32$   
 $A(ABCD) = ?$



- A) 40 B) 50 C) 64 D) 64 E) 80





$$\begin{array}{r} AB3CA \\ + BDAB4 \\ \hline 68C19 \end{array} \quad G=?$$

1. A) 4 B) 5 C) 6 D) 7 E) 8

$$\begin{array}{r} \frac{A}{G} \\ + \frac{A}{G} \\ \hline \frac{24}{G} \end{array} \quad 3G+A=?$$

2. A) 56 B) 64 C) 60 D) 68 E) 62

$$\begin{array}{r} K5KLL \\ - K3KL \\ \hline 293 \\ - 27K \\ \hline 14 \end{array} \quad = K+L=?$$

5. A) 8 B) 12 C) 16 D) 18 E) 21



$$\frac{xxy}{zzy} + \frac{ylyz}{zzy} = x+y+z+t=?$$

6. A) 13 B) 12 C) 15 D) 14 E) 16

$$\begin{array}{r} KLL \\ - KK \\ \hline 645 \end{array} \quad \Rightarrow K+L=?$$

3. A) 9 B) 10 C) 11 D) 12 E) 13

$$\begin{array}{r} 4LM \\ \times 4L \\ \hline \dots\dots \\ \dots\dots \\ \dots\dots \\ \hline 2ABCO \end{array}$$

A+B+C=?

7. A) 14 B) 11 C) 9 D) 8 E) 7

$$\begin{array}{r} x y z \\ \times k m 9 \\ \hline x m k \cdot \\ \quad x y z \\ \hline 460 y 3 \end{array}$$

k+m=?

10. A) 2 B) 3 C) 5 D) 8 E) 9

$$\begin{array}{r} abc \\ \times xy9 \\ \hline c \cdot y \cdot \\ abc \\ \hline \dots\dots \\ \dots\dots \\ \dots\dots \\ \hline 11c7a6 \end{array}$$

= x=?

8. A) 2 B) 3 C) 4 D) 5 E) 7

$$\begin{array}{r} 3KL \\ \times M3 \\ \hline \dots\dots \\ \dots\dots \\ \dots\dots \\ \hline 8 \cdot \cdot \cdot 5 \end{array}$$

K+L+M=?

9. A) 24 B) 19 C) 16 D) 14 E) 13



12. xyz üç basamaklı bir sayı. xyz Three - digits number.

a · x = 6,2  
a · y = 6,6  
a · z = 6  
a · (xyz) = ?

11. A) 250 B) 365 C) 582 D) 692 E) 763



13.  $\frac{x}{y} = \frac{10}{10}$   $\Rightarrow x+y=?$

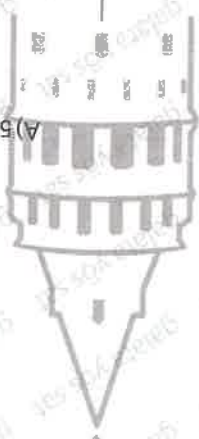
- A) 1110
- B) 100110
- C) 10111
- D) 10100
- E) 10110

- 52 ☆ 23 = 33
- 31 ☆ 43 = 76
- 25 ☆ 71 = 93
- 72 ☆ 23 = ?

- A) 75
- B) 52
- C) 97
- D) 103
- E) 151

14. 2, 5, 13, 36, 104, ?

- A) 312
- B) 309
- C) 307
- D) 305
- E) 303



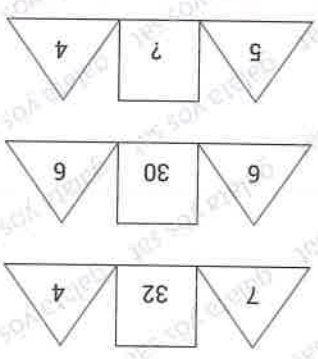
18.

☆	68	42	53	62
52	2	B	6	
74	A	10		

A) 12

A+B=?

- D) 18
- B) 14
- C) 16
- E) 20



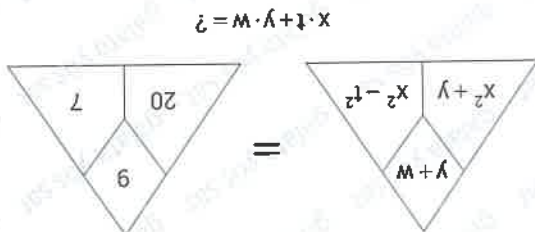
- A) 25
- B) 26
- C) 30
- D) 24
- E) 40

x	a	c
a		b
b	49b	c
c		64a

c-a+b=?

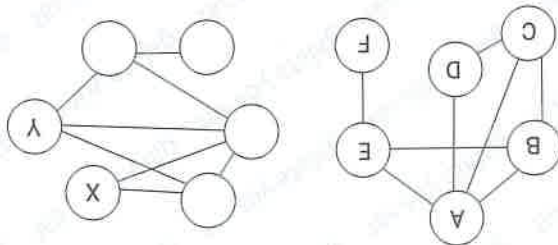
- A) 56
- B) 57
- C) 66
- D) 67
- E) 46

19.



- A) 24 B) 32 C) 48 D) 56 E) 64

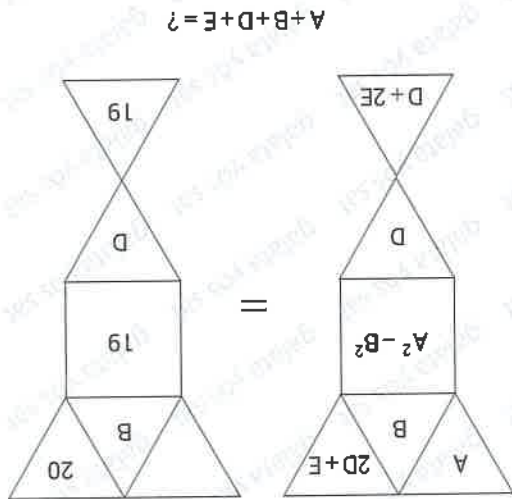
20.



X, Y = ?

- A) D, B B) A, E C) D, C D) B, D E) C, B

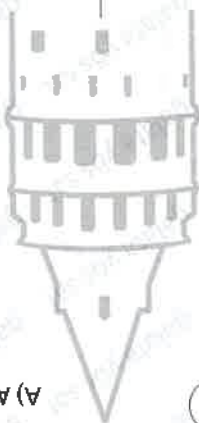
21.



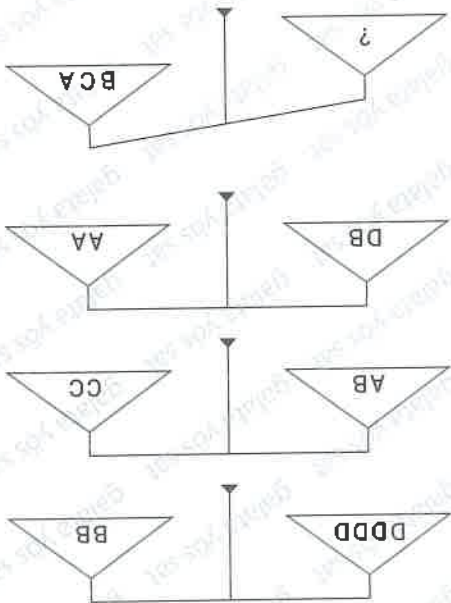
A+B+D+E = ?

- A) 28 B) 32 C) 54 D) 63 E) 8

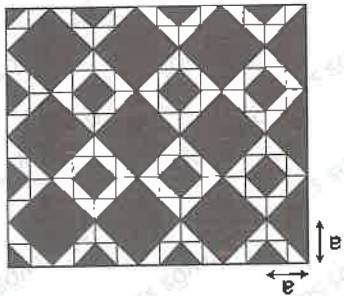
23.



22.



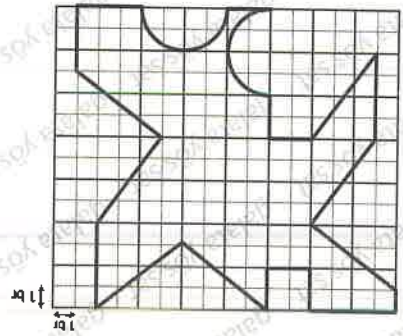
- A) AADD B) DDDD C) AA  
D) BBBB E) BAD



Tarifi alan kaq a² dir ?  
How many a² is the shaded area?

- A) 21a² B) 23a² C) 26a²  
D)  $\frac{105a^2}{4}$  E)  $\frac{107a^2}{4}$

24.



Şekildeki gibi kıvrılan telin uzunluğu kaç br dir ?  
What is the length of the twisted wire as in the figure  
( $\pi = 3$  alınız) (Accept  $\pi = 3$ ) ?

- A) 72 B) 78 C) 82 D) 84 E) 86

## Özellik Feature



Bir çiftlikte toplam 380 hayvan bulunmaktadır. Bu çiftlikteki hayvanların yüzdelik dağılımı grafikte verilmiştir. Buna göre 25, 26 ve 27. soruların cevaplayınız.

There are 380 animals on a farm. The percentage of slices of animals on this farm are given in the graphic. Accordingly, answer questions 25, 26, and 27.

- A) 133 B) 144 C) 76 D) 83 E) 95

25. Çiftlikte kaç tane inek vardır ?  
How many cows are there on the farm?

- A) 133 B) 114 C) 95 D) 38 E) 27

- A) 266 B) 380 C) 496 D) 584 E) 646

27. Tavuk ile koyunun ayak sayıları toplamı nedir ?  
What is the sum of feet of chickens and sheep?



26. Çiftlikte en fazla bulunan hayvan en az bulunan hayvandan sayıca kaç fazladır ?  
What is the difference between the number of animals which appear most and least ?

- A) 38 B) 52 C) 76 D) 83 E) 95

Aşağıdaki tabloda Aynur'un bir YÖS sınavında yaptığı

doğru yanlış sayıları yer almaktadır.

The following chart shows the number of and correct answers to the student Aynur's questions of YÖS.

YÖS sınavıyla ilgili şunlar bilinmektedir.

The following are details given for the YÖS.

• Her bir derste yer alan soru sayısı eşittir.

• Number of questions is equal for each subject.

• Aynur IQ dersinden tüm soruları cevaplamıştır.

Aynur's answered all questions in IQ.

• 4 yanlış 1 doğruyu götürmektedir.

• 4 incorrect answers cancel 1 correct answer.

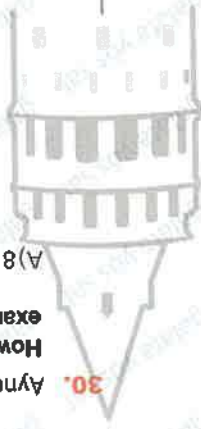
• Her soru 1 puandır.

Each question worth 1 point.

Dersler	Doğru	Yanlış	Subjects	Correct	Incorrect
Geometri	16	4	Matematik	22	1
Türke	18	6	IQ	22	3

28. Sınavda toplam kaç soru vardır ?  
How many questions are there in the exam?

- A) 80 B) 90 C) 100 D) 110 E) 120



30.

Aynur bu YÖS sınavında kaç soruyu boş bırakmıştır ?  
How many questions did Aynur leave blank in this YÖS exam?

- A) 8 B) 10 C) 12 D) 13 E) 14

29. Aynur bu YÖS sınavından kaç puan almıştır ?  
What is Aynur's score?

- A) 70 B) 72,75 C) 74,5 D) 75,25 E) 76



1.  $\frac{\cos 22 + \cos 33 + \cos 44}{\sin 22 + \sin 33 + \sin 44} = ?$

- A)  $\tan 33$     B)  $\tan 22$     C)  $\cos 33$     D)  $\cot 22$     E)  $\sec 33$

4.  $\frac{\sin 12}{\cos 78} + 1 = ?$

- A) 2    B) 1    C)  $\frac{1}{2}$     D)  $\frac{3}{4}$     E)  $\frac{1}{4}$

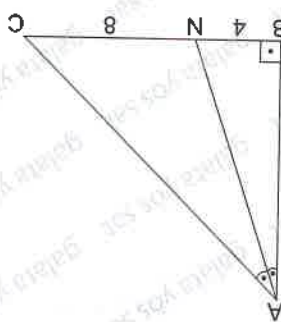
2.  $\sqrt{3} \cdot \sin x + \cos x = 0$

denklemin pozitif en küçük kökü kaçtır?

What is the smallest positive root of the equation?

- A)  $\pi$     B)  $2\pi$     C)  $\frac{2}{\pi}$     D)  $\frac{3\pi}{2}$     E)  $\frac{5\pi}{6}$

- A)  $\frac{\sqrt{2}}{5}$     B)  $\frac{1}{2}$     C)  $\frac{\sqrt{2}}{2}$     D)  $\frac{2}{\sqrt{3}}$     E)  $\frac{2}{\sqrt{5}}$



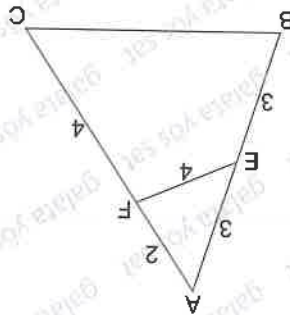
$m(\widehat{ABC}) = 90^\circ$   
 $|BN| = 4$   
 $|NC| = 8$   
 $\sin(\widehat{ANC}) = ?$

3.  $\sin\left(\arctan \frac{4}{3} + 7\pi\right) = ?$

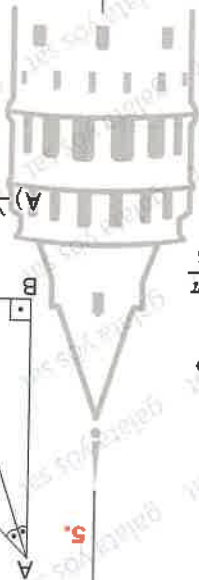
- A)  $\frac{5}{4}$     B)  $\frac{3}{2}$     C)  $\frac{5}{4}$     D)  $\frac{8}{5}$     E)  $\frac{5}{3}$

$|AE| = 3$   
 $|EB| = 3$   
 $|AF| = 2$   
 $|FC| = 4$   
 $|EF| = 4$   
 $|BC| = ?$

- A)  $3\sqrt{10}$     B)  $4\sqrt{7}$     C)  $4\sqrt{5}$     D)  $4\sqrt{3}$     E) 8



6.



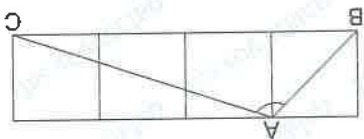
7.  $\tan 10 \cdot \tan 20 \dots \tan 70 \cdot \tan 80 = ?$

- A) 4 B)  $2\sqrt{3}$  C)  $\sqrt{3}$  D)  $\sqrt{2}$  E) 1

Şekildeki kareler eşittir.  
Squares in shape are equal.

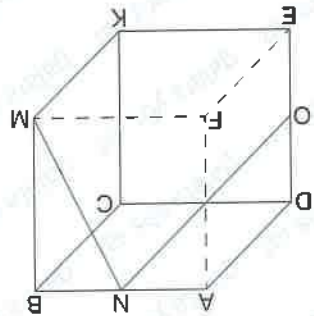
$\sin(\angle BAC) = ?$

- A)  $\frac{4}{5}$  B)  $\frac{3}{4}$  C)  $\frac{2\sqrt{5}}{5}$  D)  $\frac{2\sqrt{3}}{3}$  E)  $\frac{\sqrt{3}}{3}$



10.

ABDEFMK küp  
|AN| = |BN|  
|DO| = |OE|  
 $\cos(\angle MNO) = ?$



8.

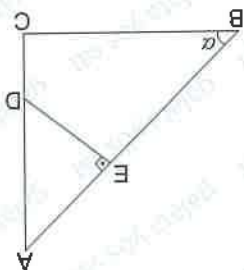
- A)  $\frac{1}{4}$  B)  $\frac{\sqrt{5}}{1}$  C)  $\frac{\sqrt{10}}{2}$  D)  $\frac{2\sqrt{17}}{1}$  E)  $\frac{\sqrt{30}}{1}$

9.  $\frac{\tan 70 - \tan 10}{1 + \tan 70 \cdot \tan 10} = ?$

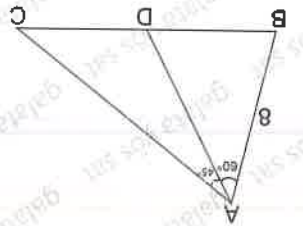
A)  $\frac{1}{3}$  B)  $\frac{\sqrt{2}}{3}$  C)  $\sqrt{3}$  D)  $\frac{\sqrt{3}}{2}$  E)  $\frac{\sqrt{2}}{1}$

12.

DE TAB  
AC TCB  
 $m(\angle ABC) = \alpha$   
|AE| = 1  
|AC| = 4  
|DE| =  $2\cos\alpha$   
|BC| = ?



- A)  $2\sqrt{2}$  B)  $2\sqrt{3}$  C) 4 D)  $4\sqrt{3}$  E) 8

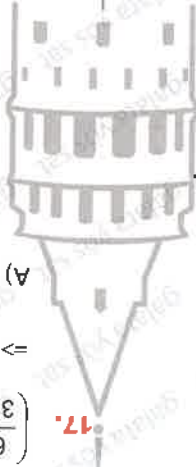


13.  $m(\widehat{BAD}) = 60^\circ$   
 $m(\widehat{DAC}) = 45^\circ$   
 $|AB| = 8$   
 $|BD| = 2|DC|$   
 $|AC| = ?$   
 A)  $2\sqrt{6}$  B)  $2\sqrt{2}$  C)  $2\sqrt{3}$  D) 2 E)  $4\sqrt{3}$

14.  $0 < x < 2\pi$   
 $\frac{\sec x - 1}{\tan x - 1} = \frac{\sec x}{\tan x + 1}$

14.  $0 < x < 2\pi$   
 How many different x values are there that provide the equation?

- A) 0 B) 1 C) 2 D) 3 E) 4  
 A) 12 B)  $\frac{3}{37}$  C) 4 D)  $\frac{3}{62}$  E) 1



17.  $\left(\frac{6y}{3y+1}\right)^x : (2y)^x = \frac{1}{81}$   
 $\Rightarrow x = ?$

16.  $\frac{1}{2} < x < \frac{2}{3}$  olmak üzere.  
 $\sqrt{4x^2 - 4x + 1} + \sqrt{4x^2 - 12x + 9} = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

15.  $f(x) = 2 \cdot \cos(-4x + 30)$   
 $f(x) = f(x + T) \Leftrightarrow \min(T) = ?$

- A)  $2\pi$  B)  $\pi$  C)  $\frac{\pi}{2}$  D)  $-\frac{\pi}{2}$  E)  $-2\pi$

18.  $A \subset U, B \subset U, (A \cap B) = \emptyset$   
 $n(A) = -x^2 - 10x + 5$   
 $n(B) = x^2 + 10x + 6$   
 $n(U) = ?$

- A)  $2x^2 + 20x + 1$  B) 0 C)  $20x$  D)  $2x^2$  E) 11

$$A = \frac{4 - 3\sqrt{x-11}}{2\sqrt{11-x+5(x+1)}}$$

19.  $A \in \mathbb{R}$ 

- A) 11 B) 9 C) 12 D) 15 E) 18

$$\frac{(x+7)^{2000}(x-2)^2}{x^2-x+1} \geq 0 \Rightarrow S, S' = ?$$

22.  $x \in \mathbb{R}$ 

- A)  $(-\infty, -7]$  B)  $[-7, 2]$  C)  $(2, \infty)$  D)  $\emptyset$  E)  $\mathbb{R}$

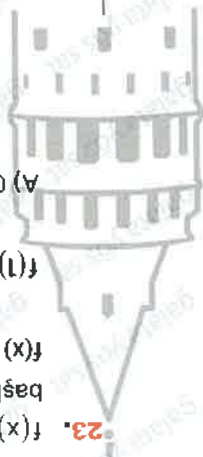
20.  $x = 1,9$

$$y = 2,9$$

- A)  $\frac{3}{65}$  B)  $\frac{3}{45}$  C)  $\frac{3}{25}$  D)  $\frac{3}{35}$  E)  $\frac{3}{55}$

$$f(1) = f(3) = 0 \Rightarrow a + b + c = ?$$

- A) 0 B) 1 C) 16 D) 4 E) 12



$$21. \begin{cases} ax^2 + bx + c = 0 \\ S, S' = \{x_1, x_2\} \end{cases} \Rightarrow \frac{x_1 + x_2}{x_1 \cdot x_2} = ?$$

- A) -1 B) 0 C) 1 D) 2 E)  $\sqrt{2}$

$$24. \frac{x-1}{x} \leq \frac{1}{x} \quad S, S' = ?$$

- A)  $[0, 1]$  B)  $(0, 1]$  C)  $(0, 1)$  D)  $[0, 1)$  E)  $(-\infty, 0)$

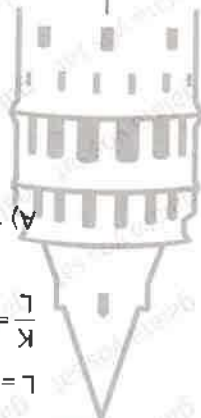


27.  $x * y = x^3 - 3x^2y + 3xy^2 - y^3$   
 $\frac{1}{2} * \frac{1}{3} = ?$

- A)  $\frac{1}{6}$
- B)  $\frac{1}{36}$
- C)  $\frac{216}{1}$
- D)  $\frac{81}{1}$
- E)  $\frac{29}{2}$

30.  $x = 1 \quad \pi = 3,1415...$   
 $|\pi^x - 3| + |\pi^x - 4| = ?$

- A) 1
- B)  $2\pi^x - 5$
- C)  $2\pi^x$
- D) -1
- E)  $\pi^x - 5$



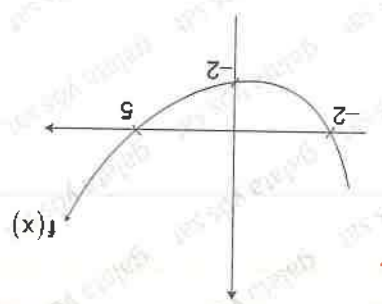
29.  $K = 1.2 + 2.3 + 3.4 + \dots + 10.11$   
 $L = 3.8 + 6.12 + 9.16 + \dots + 30.44$   
 $\frac{L}{K} = ?$

- A) 12
- B) 1,2
- C)  $\frac{12}{1}$
- D)  $\frac{6}{1}$
- E)  $\frac{3}{1}$

26.  $2\sqrt[4]{x} - \sqrt{x} = -3$

- A) {1,81}
- B) {1}
- C) {81}
- D) {1,81}
- E) {1,81}

25.  $a = ?$   
 $f(x) = \left(ax + \frac{10}{4}\right) \cdot (x - 5)$

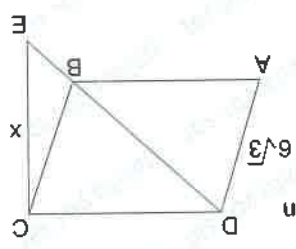


28.  $P(x-2) = 3x^2 + 4x + 10$   
 $\Rightarrow P(x) = ?$

- A)  $3x^2 + 4x + 10$
- B)  $3x^2 + 12x + 18$
- C)  $3x^2 - 8x + 30$
- D)  $3x^2 - 16x + 30$
- E)  $3x^2 + 16x + 30$

1.

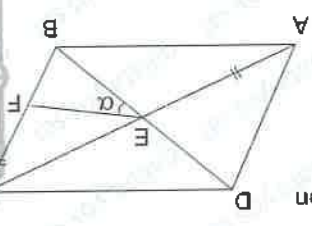
ABCD eşkenar dörtgen  
 $m(\widehat{BAD}) = 120^\circ$   
 $|BE| = 2 \text{ cm}$   
 $|AD| = 6\sqrt{3}$   
 $|CE| = x = ?$



- A)  $4\sqrt{3}$  B)  $\sqrt{3}$  C) 6 D)  $\sqrt{37}$  E)  $2\sqrt{37}$

2.

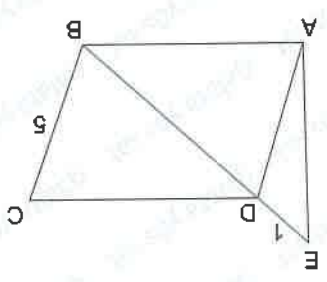
ABCD eşkenar dörtgen  
 $|AE| = |CF|$   
 $m(\widehat{DCA}) = 70^\circ \Rightarrow \alpha = ?$



- A) 30 B) 35 C) 40 D) 50 E) 77

4.

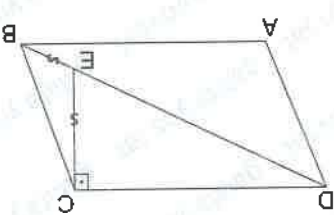
ABCD eşkenar dörtgen  
 $|ED| = 1 \text{ cm}$   
 $|BC| = 5 \text{ cm}$   
 $|AE| = 4\sqrt{2} \text{ cm}$   
 $|BD| = ?$



- A) 4 B) 5 C) 6 D) 7 E) 8

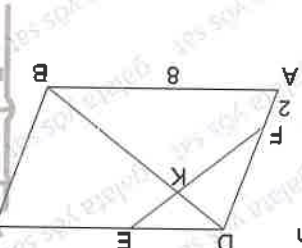
3.

ABCD eşkenar dörtgen  
 $|CE| \perp |CD|$   
 $|CE| = |EB|$   
 $|AB| = 8\sqrt{3}$   
 $|BD| = ?$

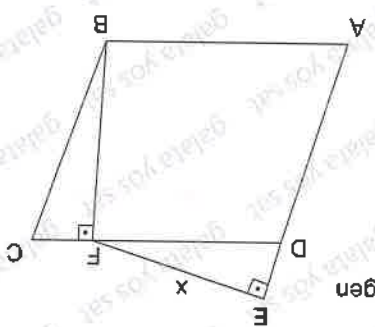


- A) 8 B) 10 C) 16 D) 20 E) 24

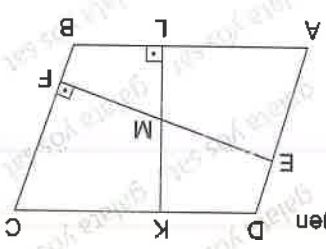
6. ABCD eskenar dörtgen  
 $2|EK| = |FK|$   
 $|FA| = 2 \text{ cm}$   
 $|AB| = 8 \text{ cm}$   
 $|EC| = ?$
- A) 3 B) 4 C) 5 D) 6 E) 7



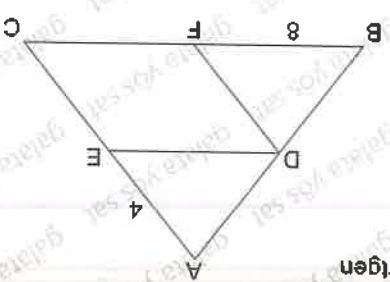
7. ABCD eskenar dörtgen  
 $|AE| \perp |EF|$   
 $|CD| \perp |BF|$   
 $|CF| = 12 \text{ cm}$   
 $|AB| = 20 \text{ cm}$   
 $|BF| = x = ?$
- A)  $\frac{5}{2}$  B) 6 C) 7 D) 8 E) 9



5. ABCD eskenar dörtgen  
 $[EF] \perp [BC]$   
 $[KL] \perp [AB]$   
 $|EM| = 2x$   
 $|MF| = 4 + x$   
 $|ML| = 4 - 5x$   
 $|KM| = 7 - x$   
 $x = ?$
- A)  $\frac{4}{7}$  B)  $\frac{9}{7}$  C)  $\frac{7}{5}$  D)  $\frac{9}{8}$  E) 1

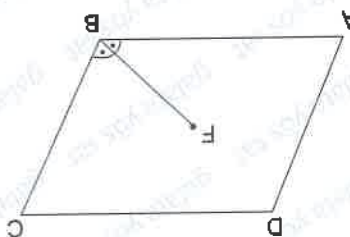


7. DECF eskenar dörtgen  
 $|AE| = 4 \text{ cm}$   
 $|BF| = 8 \text{ cm}$   
 $\hat{C}(DECF) = ?$
- A) 15 B)  $13\sqrt{2}$  C)  $15\sqrt{2}$  D)  $16\sqrt{2}$  E)  $18\sqrt{2}$





9. ABCD eşkenar dörtgen



F: köşegenlerin kesim noktası

[BF] açıortay

[BF] bisektör

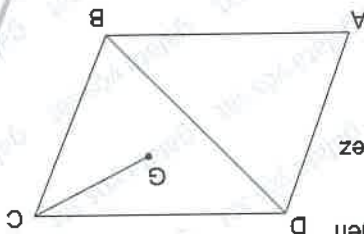
$|BF| = 8$  cm

$\hat{C}(ABCD) = 40$

$\hat{A}(ABCD) = ?$

- A) 48 B) 50 C) 54 D) 80 E) 96

10. ABCD eşkenar dörtgen



G: BCD ağırlık merkez

center of gravity

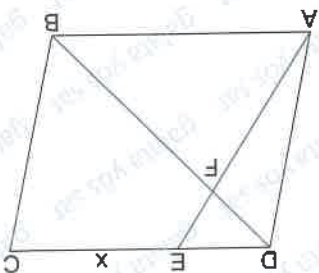
$|GC| = 10$

$|BD| = 16$

$\hat{C}(ABCD) = ?$

- A) 60 B) 64 C) 66 D) 68 E) 72

12. ABCD paralelkenar



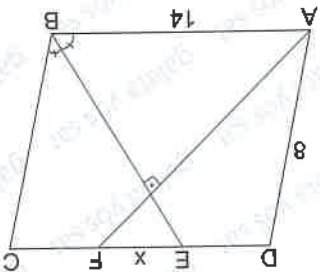
3|DF| = |BF|

$|AB| = 15$  cm

$|EC| = x = ?$

- A) 10 B) 11 C) 12 D) 13 E) 14

13. ABCD paralelkenar



[BE] açıortay

[BE] bisektör

$[AF] \perp [BE]$

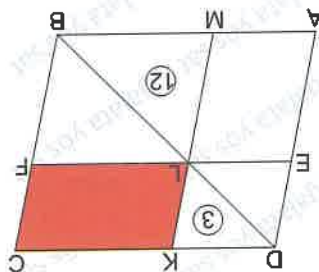
$|AD| = 8$  cm

$|AB| = 14$  cm

$x = ?$

- A) 2 B) 3 C) 4 D) 5 E) 6

11. ABCD paralelkenar



ABCD paralelkenar

$[DE] \parallel [KL]$

$[CD] \parallel [AB]$

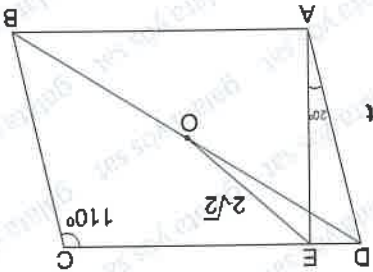
$\hat{A}(DKL) = 3$  cm<sup>2</sup>

$\hat{A}(BLM) = 12$  cm<sup>2</sup>

$\hat{A}(CKLF) = ?$

- A) 6 B) 10 C) 12 D) 14 E) 20

14. ABCD paralelkenar



ABCD paralelkenar

O: köşegenlerin kesim noktası

O: diagonals cut-point

$m(\angle DAE) = 20^\circ$

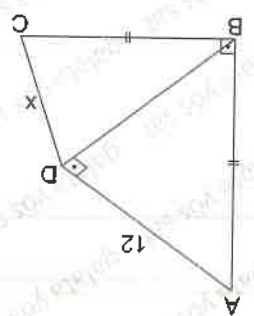
$m(\angle DCB) = 110^\circ$

$|OE| = 2\sqrt{2}$

$|AE|^2 + |EC|^2 = ?$

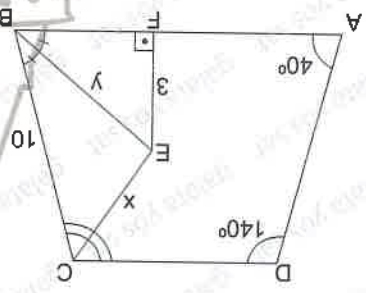
- A) 30 B) 32 C) 34 D) 36 E) 40

15.  $[AD] \perp [BD]$   
 $[AB] \perp [BC]$   
 $|AB| = |BC| = 20$  cm  
 $|AD| = 12$  cm  
 $x = ?$



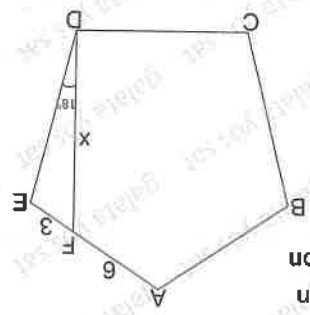
- A)  $\sqrt{17}$  B)  $2\sqrt{17}$  C)  $3\sqrt{17}$  D)  $4\sqrt{17}$  E)  $5\sqrt{17}$

16.  $[BE] \vee [CE]$  açıortay  
 $[BE]$  and  $[CE]$  bisectors  
 $[EF] \perp [AB]$   
 $m(\widehat{BAD}) = 40^\circ$   
 $m(\widehat{ADC}) = 140^\circ$   
 $|EF| = 3$  cm  
 $|BC| = 10$  cm  
 $x + y = ?$



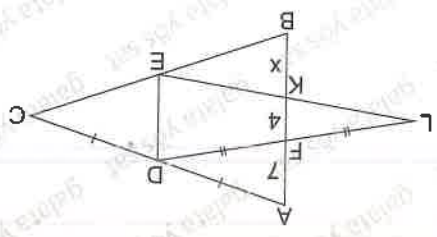
- A)  $2\sqrt{10}$   
 B)  $3\sqrt{10}$   
 C)  $4\sqrt{10}$   
 D)  $5\sqrt{10}$   
 E)  $6\sqrt{10}$

17. ABCDE düzün beşgen  
 $|AF| = 3$  cm  
 $|BF| = 6$  cm  
 $m(\widehat{EDF}) = 18^\circ$   
 $x = ?$



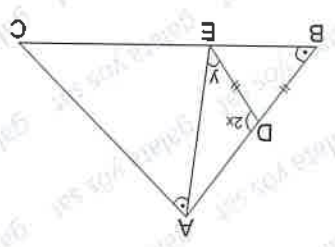
- A) 9 B) 11 C) 12 D) 13 E) 18

18.  $[AB] \parallel [DE]$   
 $|AD| = |DC|$   
 $|FL| = |DF|$   
 $|FK| = 4$  cm  
 $|AF| = 7$  cm  
 $|KB| = x = ?$



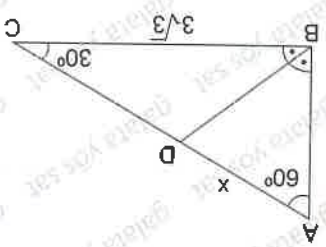
- A) 5 B) 6 C) 7 D) 8 E) 9

19.  $m(\widehat{CAE}) = m(\widehat{ABC})$   
 $|BD| = |DE|$   
 $m(\widehat{ADE}) = 2x$   
 $m(\widehat{AED}) = y$   
 $m(\widehat{ACB}) = z$



- A) 1 B) 2 C) 3 D) 4 E) 5

20. ABC bir üçgen  
 $[BD]$  açıortay  
 $[BD]$  bisektor  
 $m(\widehat{BAC}) = 60^\circ$   
 $m(\widehat{ACB}) = 30^\circ$   
 $|BC| = 3\sqrt{3}$   
 $|AD| = x = ?$



- A)  $3\sqrt{3}$   
 B)  $3\sqrt{3} - 3$   
 C)  $3\sqrt{3} + 3$   
 D)  $6\sqrt{3}$   
 E)  $6\sqrt{3} - 3$

# Başarıya Götüren



Mat	Problem Solving / Problem	Mat	Problem Solving / Problem	Mat	Problem Solving / Problem
Mat	Problem Solving / Problem	Mat	Problem Solving / Problem	Mat	Problem Solving / Problem
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Mat	Problem Solving / Problem	Mat	Problem Solving / Problem	Mat	Problem Solving / Problem
Mat	Problem Solving / Problem	Mat	Problem Solving / Problem	Mat	Problem Solving / Problem
Mat	Problem Solving / Problem	Mat	Problem Solving / Problem	Mat	Problem Solving / Problem

Mat	Problem Solving / Problem	Mat	Problem Solving / Problem	Mat	Problem Solving / Problem
Mat	Problem Solving / Problem	Mat	Problem Solving / Problem	Mat	Problem Solving / Problem
Mat	Problem Solving / Problem	Mat	Problem Solving / Problem	Mat	Problem Solving / Problem

## KTS-18

Mat	Karşılıklı Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry	Geo	Yüksekgeniz / Trapezoid
Mat	Karşılıklı Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry	Geo	Yüksekgeniz / Trapezoid
Mat	Karşılıklı Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry	Geo	Yüksekgeniz / Trapezoid

Mat	Modüler Aritmetik	Mat	Polinomlar / Polynomial	Geo	Köşgenler / Polygons
Mat	Modüler Aritmetik	Mat	Polinomlar / Polynomial	Geo	Köşgenler / Polygons
Mat	Modüler Aritmetik	Mat	Polinomlar / Polynomial	Geo	Köşgenler / Polygons

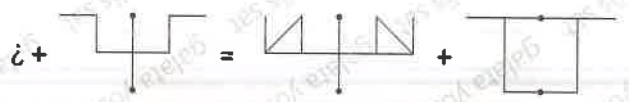
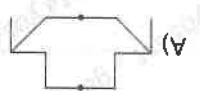
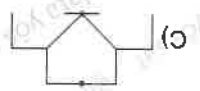
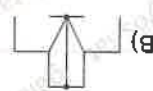
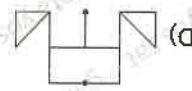
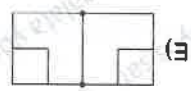
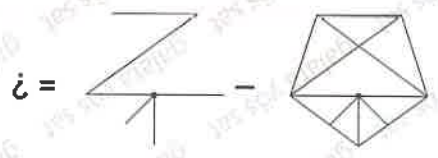
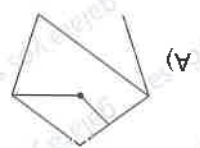
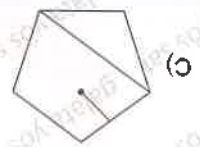
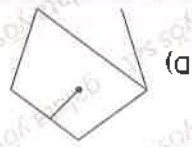
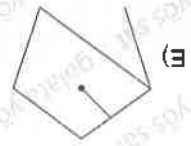
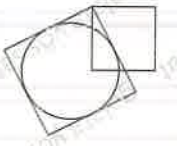
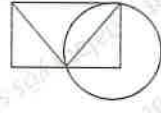
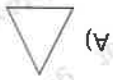
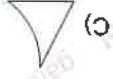
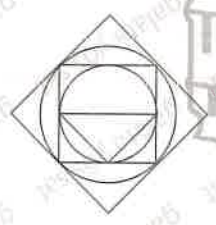
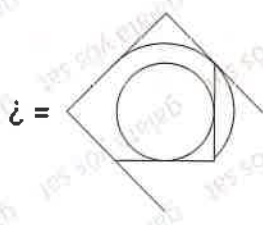
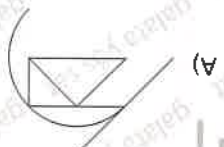
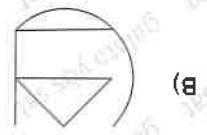
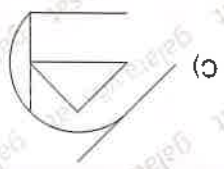
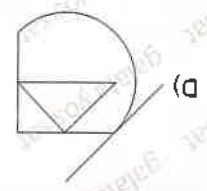
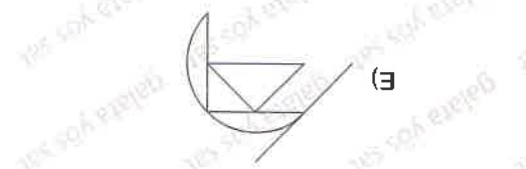
Mat	İçim / Oranlar	Mat	Karşılıklı Çarpım ve Fonksiyonlar	Geo	Yüksekgenin Alanı / Area of Triangles
Mat	İçim / Oranlar	Mat	Karşılıklı Çarpım ve Fonksiyonlar	Geo	Yüksekgenin Alanı / Area of Triangles
Mat	İçim / Oranlar	Mat	Karşılıklı Çarpım ve Fonksiyonlar	Geo	Yüksekgenin Alanı / Area of Triangles

Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers	Geo	Üçgenin Benzerlik
Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers	Geo	Üçgenin Benzerlik
Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers	Geo	Üçgenin Benzerlik

Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Çarpım Ayrımı / Factorization	Geo	İsoçken ve Eşkenar Üçgen
Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Çarpım Ayrımı / Factorization	Geo	İsoçken ve Eşkenar Üçgen
Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Çarpım Ayrımı / Factorization	Geo	İsoçken ve Eşkenar Üçgen

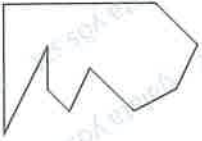
Mat	İklim Üçgeni ve Rasyonel Sayılar	Mat	Doğrudan Denklem	Geo	Doğru Açılar / Angles
Mat	İklim Üçgeni ve Rasyonel Sayılar	Mat	Doğrudan Denklem	Geo	Doğru Açılar / Angles
Mat	İklim Üçgeni ve Rasyonel Sayılar	Mat	Doğrudan Denklem	Geo	Doğru Açılar / Angles



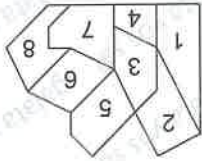


Yukarıdaki Şekil II, Şekil I'den hangi parçaların atılmasıyla oluşmuştur ?  
Figure II was formed by taking which piece from figure I ?

Şekil II.



Şekil I.



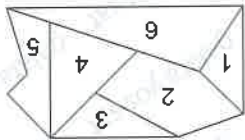
- A) 1 B) 2 C) 3 D) 5 E) 6

Yukarıdaki şekil II, şekil I'den hangi parçanın atılmasıyla oluşmuştur ?  
Figure II was formed by taking which piece from figure I ?

Şekil II.



Şekil I.



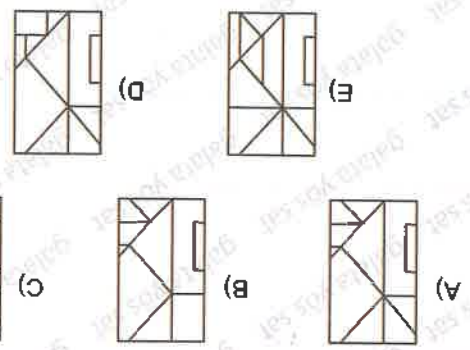
- A) 1 B) 2 C) 3 D) 5 E) 6

6. + ?

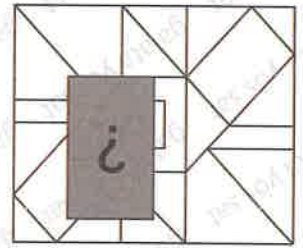
- A) B) C) D) E)

7. + ?

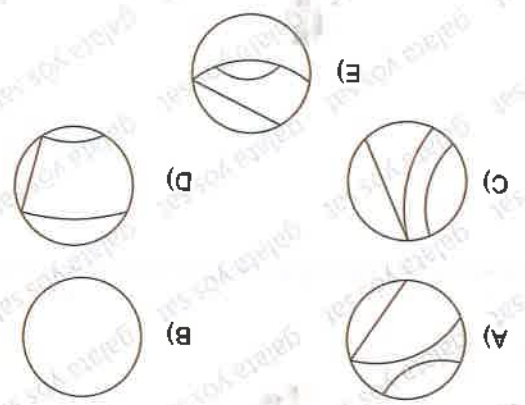
- A) B) C) D) E)



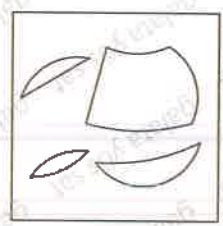
Yukarıdaki şeklide taraflı olarak gösterilen şeklin yerine aşağıdakilerden hangisi gelmelidir ?  
Which of the following should replace the shaded figure in the figure above?



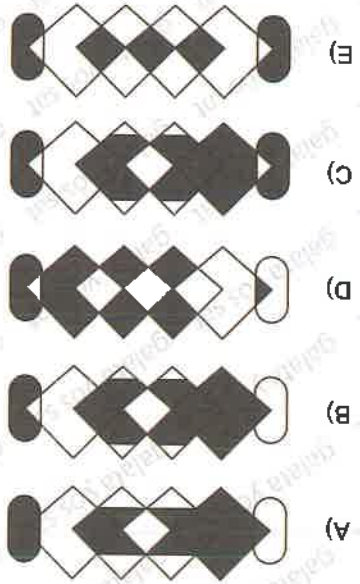
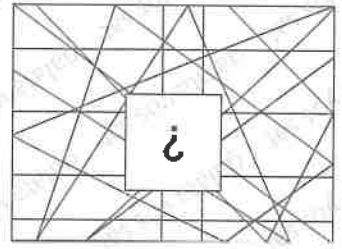
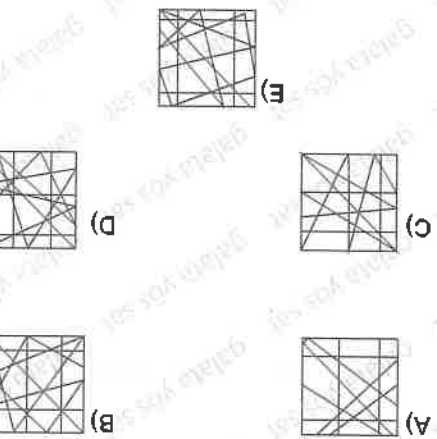
10.



Yukarıdaki parçalar birleştiğinde aşağıdakilerden hangisi olur ?  
When you put the above parts together, which of the following happens?



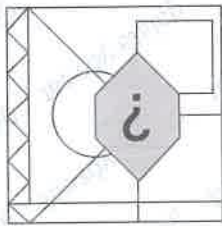
9.



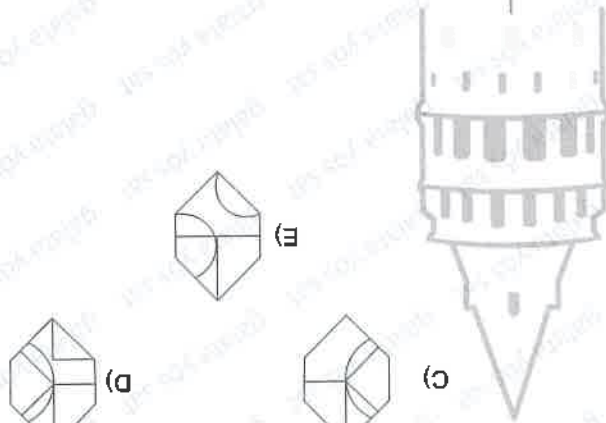
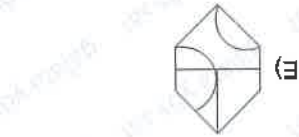
Yukarıdaki şeklin karşiti (negative) hangisidir ?  
Which is the opposite (negative) of the above figure?

11.



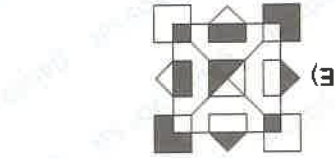
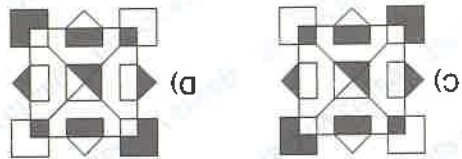
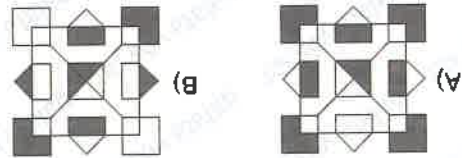
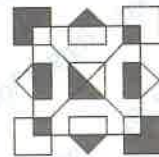


Yukarıdaki şeklin içinde bulunan taralı altıgenin yerine gelecek şekil aşağıdakilerden hangisidir ?  
Which of the following is the figure that will replace the shaded hexagon in the figure above?

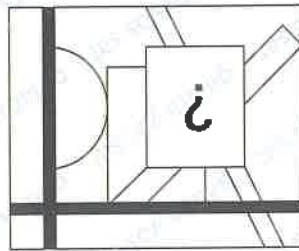


15.

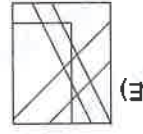
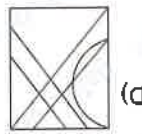
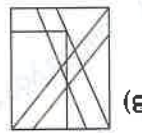
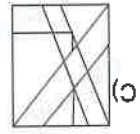
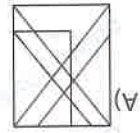
Yukarıdaki şeklin karşiti (negatif) hangisidir ?  
Which is the opposite (negative) of the above figure?



14.



Yukarıdaki bir bütün içerisinde gikarılan şekil aşağıdaki-  
lerden hangisidir ?  
Which of the following is the figure extracted from the  
whole above?



16. 1 ☆ 2 = 6  
3 ☆ 2 = 120  
5 ☆ 1 = 720  
2 ☆ 2 = ?

- A) 12 B) 24 C) 36 D) 240 E) 700



17. 14 03 23 20

Gün / Day Ay / Month Saat / Hour Dakika / Minute

Yukarıdaki saat 1475 dakika sonra hangi zamanı gösterir.  
What time does the clock above indicate after 1475 minutes?

A) 15 03 23 20

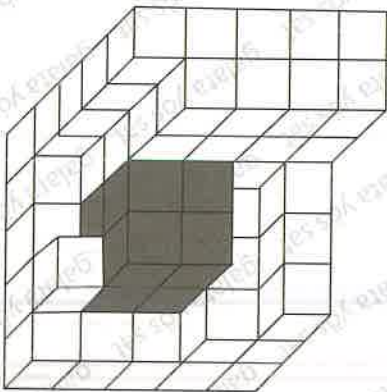
B) 16 03 00 05

C) 16 03 20 55

D) 15 03 23 55

E) 16 03 23 55

19.



Siyah küpü kapatacak için kaç tane beyaz küpüküpe ihtiyac vardır ?

How many white cubes are needed to cover the black cube?

A) 13 B) 15 C) 27 D) 38 E) 46



Volha bulunduğ yerdən 3 birim doğuya sonra 4 birim kuzeye sonra da 5 birim doğuya gittiştir. Mehri, 4 birim doğuya sonra 2 birim güneye gittiştir. Volha ve Mehri başlangıçta yan yana olduklarına göre aralarındaki məsafə kaç birimdir ?

Volha moved 3 units east, 4 units north, 5 units straight from where it is located. Mehri went 4 units east and 2 units south. Since Volha and Mehri were initially side by side, what is the distance between them?

A) 4 B)  $\sqrt{29}$  C)  $\sqrt{40}$  D) 7 E)  $\sqrt{52}$

18. Çevresi 9m olan bir gember P noktasında R noktasına

8. turda varmış oluyor.

A circle with a circumference of 9m reaches point R from point P in the 8th round.



Buna göre aşağıda çevresi 3m olan bir gember aynı yolu

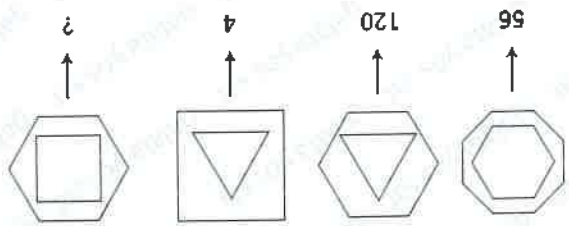
kaçinci turda tamamlamış olur ?

A circle of 3 meters in circumference, in which round will it complete the same road?



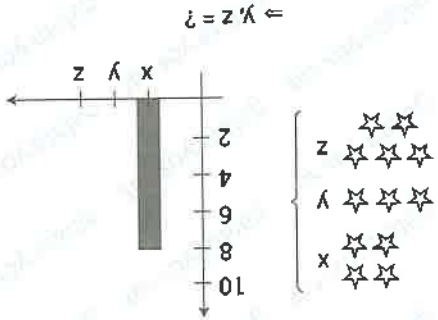
A) 20 B) 21 C) 22 D) 23 E) 24

21.



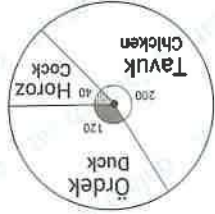
- A) 81 B) 72 C) 56 D) 30 E) 24

22.



- A) 8,6 B) 6,8 C) 6,10 D) 10,6 E) 10,8

23.



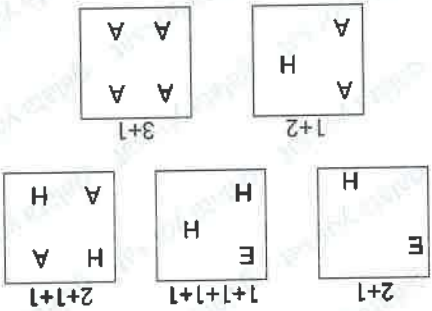
Yandaki dairesel grafik bir çiftlikte bulunan tavuk, horoz ve ördek sayılarının dağılımını göstermektedir. The pie chart shows the distribution of the numbers of chickens, cocks and ducks in a farm.

Bu çiftlikte  $x+7$  tane horoz,  $4x+4$  tane ördek olduğuna göre, bu çiftlikteki tavuk sayısı kaçtır ?

Since there are  $x + 7$  cocks and  $4x + 4$  ducks in this farm, what is the number of chickens in this farm?

- A) 120 B) 130 C) 140 D) 150 E) 160

24.



Yukarıdaki şekillere göre

What is ?



şekli kağı gösterrir ?

A)  $1+1+1+1+1+1+2$

B)  $3+3+4+4+1$

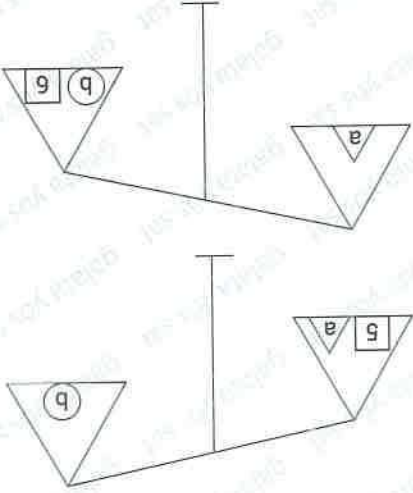
C)  $7+6+5+4$

D)  $7+3$

E)  $7+5$

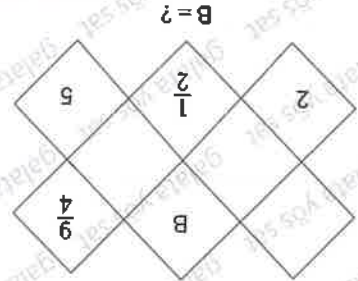
Yukarıdaki terazide b'nin kütlesi 18 olursa, a'nın kütlesi aşağıdakilerden hangisi olabilir ?

If the mass of b is 18 in the balance above, which one of the following can A be?



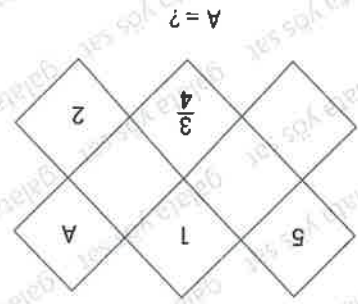
- A) 13 B) 12 C) 18 D) 24 E) 26

- A) 1 B) 2 C) 4 D) 5 E) 9



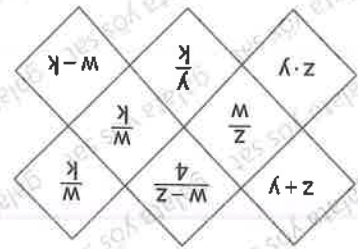
27.

- A) 3 B)  $\frac{3}{1}$  C)  $\frac{2}{1}$  D)  $\frac{2}{3}$  E) 2



26.

26. ve 27. sorular yukarıdaki tabloya göre cevaplandırılacaktır.  
Questions 26 and 27 will be answered according to the above table.



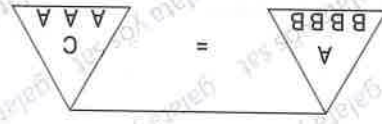
28.

$$K^3 + K^2 \sqrt{\frac{M+1}{K^2+K}} = K = ?$$

- A)  $M+2$  B)  $M-1$  C)  $2M+1$  D)  $M+3$  E)  $M+1$

4	6	4	3
7	7	6	4
?	25	14	1
5	8	2	5
7	9	8	6

- A) 12 B) 16 C) 20 D) 25 E) 36



- A) BBBC B) BAAC C) AABB D) CCBA E) CCC

1.  $|z| = -1 \Rightarrow \sqrt{-9 + \sqrt{-16} \cdot \sqrt{-1}} = ?$

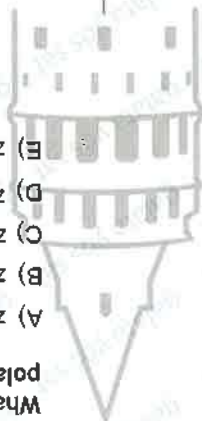
- A)  $4+3i$   
 B)  $-4+3i$   
 C)  $-7$   
 D)  $7i$   
 E)  $-7i$

2.  $i^{32n+29} + i^{4n+3} = ?$

- A)  $1+2i$   
 B)  $2i$   
 C)  $-2i$   
 D)  $-2i-1$   
 E)  $i-2$

3.  $z = x+iy$  olmak üzere,  
 $i \cdot z + 3 - i = 2z + 3i \Rightarrow \operatorname{Im}(z) = ?$

- A)  $-3$   
 B)  $-\frac{3}{5}$   
 C)  $-1$   
 D)  $1$   
 E)  $\frac{3}{5}$



4.

$z_1 = 2-3i, z_2 = 1+i, z_3 = 1+2i,$

$$\Rightarrow \left| \frac{-5z_1 \cdot z_2}{z_3} \right| = ?$$

- A)  $\sqrt{13}$   
 B)  $\frac{13\sqrt{2}}{2}$   
 C)  $13$   
 D)  $13\sqrt{2}$   
 E)  $26$

5.

$z = 3\sqrt{3} + 3i$  karmaşık sayısının kutupsal biçiminde

gösterimi aşağıdakilerden hangisidir ?

What is the representation of the complex number  $z$  in polar form?

- A)  $z = 16 \cdot (\cos 60^\circ + i \sin 60^\circ)$   
 B)  $z = 16 \cdot (\cos 30^\circ + i \sin 30^\circ)$   
 C)  $z = 6 \cdot (\cos 60^\circ + i \sin 60^\circ)$   
 D)  $z = 6 \cdot (\cos 30^\circ + i \sin 30^\circ)$   
 E)  $z = 4 \cdot (\cos 30^\circ + i \sin 30^\circ)$

6.

$z_1 = 2cis40^\circ, z_2 = 3cis20^\circ,$   
 $z_1 \cdot z_2 = ?$

- A)  $6+6i$   
 B)  $6\sqrt{3}+6i$   
 C)  $3+3\sqrt{3}i$   
 D)  $3\sqrt{3}+3i$   
 E)  $3i$



7.  $z_1 = \sqrt{3} + i$ ,  $z_2 = -2 + 2\sqrt{3}i$   $\Rightarrow \frac{z_2}{z_1} = ?$

- A)  $-2i$  B)  $2i$  C)  $-2$  D)  $2$  E)  $1 + 2i$

10.  $\frac{x^2 - 8xi + 12}{x^2 + 4}$

İradesinin en sade hali nedir ?  
What is the simplest form of the expression?

- A)  $\frac{x-6i}{x+2i}$  B)  $\frac{x-2i}{x+4i}$  C)  $\frac{x+2i}{x+6i}$   
D)  $\frac{x+6i}{x+2i}$  E)  $x+2i$

8.  $z^3 = 1 + \sqrt{3}i$  karmasık sayısının köklerinden biri hangisidir ?

Which is one of the roots of the complex number  $z^3 = 1 + \sqrt{3}i$ ?

- A)  $\sqrt[3]{2} \text{ cis } 10^\circ$  B)  $\sqrt[3]{2} \text{ cis } 80^\circ$  C)  $\sqrt[3]{2} \text{ cis } 140^\circ$   
D)  $\sqrt[3]{4} \text{ cis } 20^\circ$  E)  $\sqrt[3]{4} \text{ cis } 100^\circ$

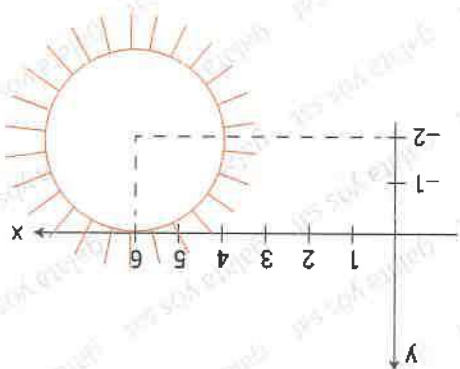
- A) 3 B) 4 C) 5 D) 6 E) 7

11.  $|z| \leq 2$ ,  $|z + 4 - 3i|$   
nin en büyük değeri kaçtır ?  
What is the highest value?

- A)  $220^\circ$  B)  $140^\circ$  C)  $90^\circ$  D)  $60^\circ$  E)  $30^\circ$

9.  $z = -1 + i \cdot \tan 40^\circ \Rightarrow \text{Arg}(z) = ?$

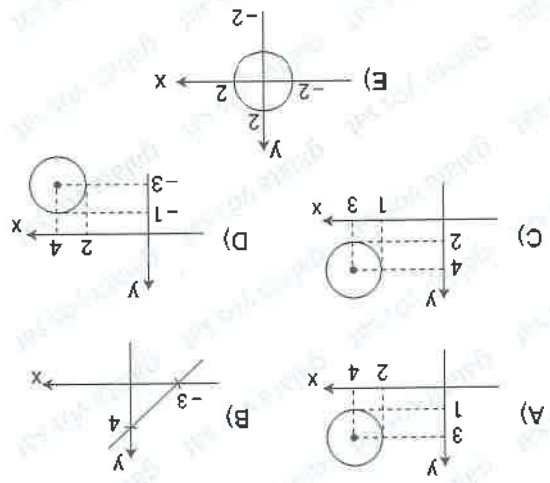
12.



- A)  $|z + 6 - 2i| \leq 2z$  B)  $|z + 6 - 2i| \geq 2z$   
C)  $|z + 6 - 2i| = 2z$  D)  $|z - 6 + 2i| \geq 2z$   
E)  $|z - 6 + 2i| \leq 2z$

13.  $|z - 4 + 3i| = 2$

İfadelerin geometrik yeri hangisidir ?  
which is the geometric locus of the expression?

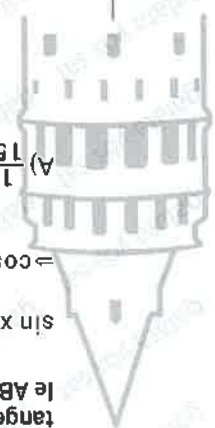


14.  $0 < x < \frac{\pi}{2}$  ve  $\frac{\sin x + \cos x \cdot \cot x}{1} = \frac{3}{1}$   
 $= \tan x = ?$

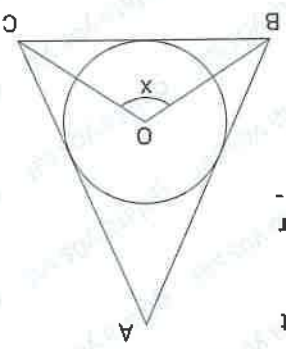
- A)  $\frac{4}{\sqrt{2}}$
- B)  $2\sqrt{2}$
- C)  $\frac{2}{\sqrt{3}}$
- D)  $\frac{3}{4}$
- E) 3

15.  $3 \cos(\pi - \alpha) - 4 \cos\left(\frac{3\pi}{2} - \alpha\right) = 0$   
 $\Rightarrow \tan\left(\frac{\pi}{2} + \alpha\right) = ?$

- A)  $-\frac{3}{4}$
- B)  $-\frac{4}{3}$
- C) 0
- D)  $\frac{4}{3}$
- E)  $\frac{3}{4}$



17. ABC üçgeninin iç teğet çemberinin merkezi O noktasıdır.  
The center of the inner tangent circle of triangle ABC is the point O.



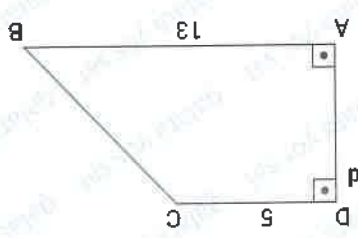
$\sin x = \frac{3}{2}$   
 $= \cos A = ?$

- A)  $\frac{1}{15}$
- B)  $\frac{1}{2}$
- C)  $\frac{9}{1}$
- D)  $-\frac{6}{1}$
- E)  $-\frac{9}{1}$

18.  $a^2 + b^2 + ab = 9$   
 $b^2 + c^2 + bc = 16$   
 $c^2 + a^2 + ac = 25$   
 $ab + ac + bc = ?$

- A)  $8\sqrt{3}$
- B)  $4\sqrt{3}$
- C)  $8\sqrt{3}$
- D)  $32\sqrt{3}$
- E)  $16\sqrt{3}$

16. ABCD dik yamuk  
ABCD right trapezoid  
 $|AB| = 13$   
 $|DC| = 5$   
 $A(ABCD) = 54$   
 $\cos(\widehat{ABC}) = ?$



- A)  $\frac{4}{3}$
- B)  $\frac{5}{4}$
- C)  $\frac{5}{3}$
- D)  $\frac{5}{1}$
- E)  $\frac{5}{2}$

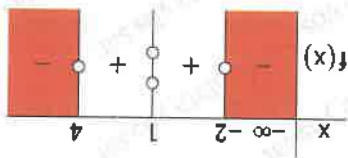
18.  $\arctan 3x = \arccot x \Rightarrow x = ?$

- A)  $\sqrt{3}$  B) 1 C)  $\frac{1}{\sqrt{3}}$  D)  $\frac{2\sqrt{3}}{1}$  E) 0

23. 
$$\begin{cases} x = 2\sqrt{2} - 3 \\ y = 7 - 5\sqrt{2} \end{cases} \quad \frac{y}{x} = ?$$

- A)  $\sqrt{2} - 1$  B)  $\sqrt{2} + 1$  C)  $\sqrt{14} - 2$  D)  $\sqrt{2} + \sqrt{3}$  E)  $\sqrt{3} - \sqrt{2}$

24.



denkleminin köklerinden biri kaç derecedir?  
How many degrees is one of the roots of the equation?

- A) 40 B) 60 C) 90 D) 135 E) 150

21.  $x^2 + x + 7 = 3 - x \Rightarrow (x-2)^2 - \frac{(x+2)^2}{48} = ?$

- A) 2 B) 4 C) 6 D) 8 E) 12

25. 
$$\begin{aligned} 12^a &= 2 \\ 6^b &= 3 \\ 12^{(1-a) \cdot 2b} &= ? \end{aligned}$$

- A) 9 B) 4 C) 12 D) 18 E) 36

22.  $g(x) = -x^2 + ax + 2a$  ve

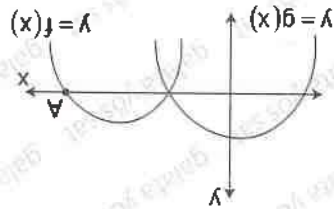
$f(x) = -x^2 + 5ax - 6a$

parabolünün grafikleri

verilmiştir.

The graphics of the

parabolas are given.



What is the abscissa of point A?

Buna göre A noktasının

apsisi kaçtır?

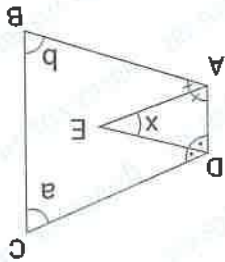
- A) 3 B) 4 C) 5 D) 6 E) 7

26.  $2x = 3y = 4z, \quad \frac{x}{2} + \frac{y}{4} + \frac{z}{8} = 24$

$\Rightarrow x + 3y + 2z = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5





1. ABCD yamuk  
ABCD trapezoid

$$m(\widehat{BAE}) = m(\widehat{EAD})$$

$$m(\widehat{ADE}) = m(\widehat{EDC})$$

$$m(\widehat{DEA}) = x$$

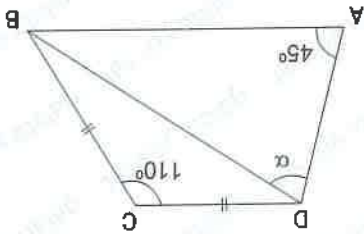
$$m(\widehat{DCB}) = a$$

$$m(\widehat{ABC}) = b$$

$$a + b = 130^\circ$$

$$x = ?$$

- A) 65 B) 80 C) 85 D) 100 E) 130



2. ABCD bir yamuk  
ABCD trapezoid

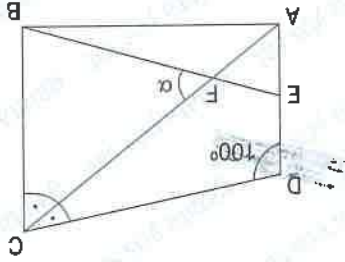
$$|AD| = |BC|$$

$$m(\widehat{BCD}) = 110^\circ$$

$$m(\widehat{BAD}) = 45^\circ$$

$$m(\widehat{BDA}) = \alpha = ?$$

- A) 80 B) 85 C) 90 D) 95 E) 100



3. ABCD bir yamuk  
ABCD trapezoid

$$m(\widehat{DCA}) = m(\widehat{ACB})$$

$$m(\widehat{ADC}) = 100^\circ$$

$$|BF| = |FC|$$

$$m(\widehat{BFC}) = \alpha = ?$$

- A) 100 B) 110 C) 115 D) 120 E) 125

27.  $f(x) = \frac{2x-3}{ax-b}$ ,  $f^{-1}(x) = \frac{5x+c}{3x-2}$  =  $a+b+c = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

28.  $P(x)$  polinomunun  $x^2 - 2x$  ile bölünmeden elde edilen bölümü  $M(x)$ , kalan  $7x - 9$  dur. Buna göre,  $P(x)$  polinomunun  $x - 2$  ile bölünmeden elde edilen bölümü  $F(x)$  hangisidir ?

The quotient obtained by dividing the polynomial  $P(x)$  by  $x - 2x$  is  $M(x)$ , the remainder is  $7x - 9$ . So, Which is the quotient obtained by dividing the polynomial  $P(x)$  by  $x - 2$  ?

- A)  $M(x) + 7$  B)  $x \cdot M(x)$  C)  $x \cdot M(x) - 5$

- D)  $x \cdot M(x) + 7$  E)  $M(x) - x$

29. Bir kutudaki kalemlerin sayısının en az 87 ve en çok 130 olduğu bilinmektedir. Kutudaki kalemler 3'er, 6'şar ve 7'şer sayıldığında her seferinde iki kalem artmaktadır.

Buna göre kutuda kaç kalem vardır ?

It is known that the number of items in a box is at least 87 and at most 130. When the items in the box are counted three, six, and seven, two items increase each time.

How many pens are in the box?

- A) 108 B) 114 C) 117 D) 120 E) 128

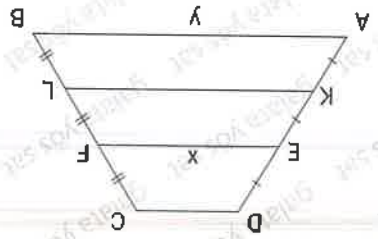
30.  $s(A-B) + s(B-C) + s(C-A) = 36$

$$s(A \cap B \cap C) = 6$$

$$s(A \cup B \cup C) = ?$$

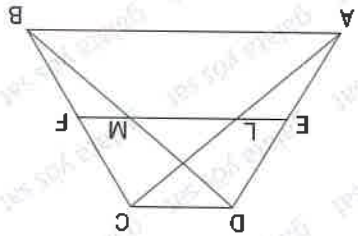
- A) 26 B) 30 C) 38 D) 42 E) 44

4. ABCD bir yamuk  
 ABCD trapezoid  
 $|AK| = |KE| = |ED|$   
 $|BL| = |LF| = |FC|$   
 $|CD| = 5$   
 $|KL| = 9$   
 $|EF| = x$   
 $|AB| = y$   
 $y - x = ?$



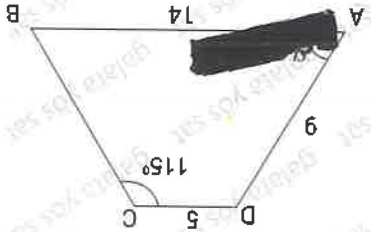
- A) 1 B) 2 C) 3 D) 4 E) 5

5. ABCD bir yamuk  
 ABCD trapezoid  
 $|EF|$  orta taban  
 $|EF|$  midsegment  
 $|DC| = 2 |LM|$   
 $|AB| = 10$   
 $|CD| = ?$



- A)  $\frac{2}{3}$  B)  $\frac{2}{5}$  C)  $\frac{2}{7}$  D) 5 E) 6

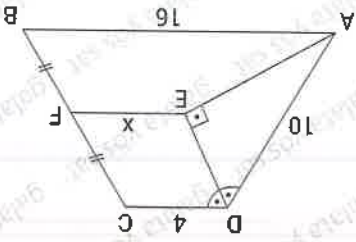
6. ABCD bir yamuk  
 ABCD trapezoid  
 $m(\widehat{BCD}) = 115^\circ$   
 $|CD| = 5$   
 $|AD| = 9$   
 $|AB| = 14$   
 $m(\widehat{BAD}) = \alpha = ?$



- A) 50 B) 80 C) 100 D) 115 E) 120

7.

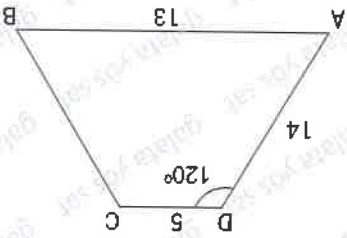
ABCD bir yamuk  
 ABCD trapezoid  
 $|CF| = |FB|$   
 $|CD| = 4$   
 $|AD| = 10$   
 $|AB| = 16$   
 $|DE| \perp |AE|$   
 $|EF| = x = ?$



- A) 5 B) 6 C) 8 D) 9 E) 10

8.

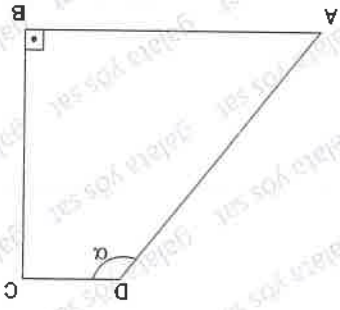
ABCD bir yamuk  
 ABCD trapezoid  
 $m(\widehat{CDA}) = 120^\circ$   
 $|CD| = 5$   
 $|AD| = 14$   
 $|AB| = 13$   
 $A(\widehat{ABCD}) = ?$



- A)  $50\sqrt{3}$  B)  $55\sqrt{3}$  C)  $60\sqrt{3}$  D)  $63\sqrt{3}$  E)  $70\sqrt{3}$

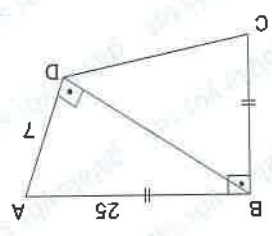
9.

ABCD bir yamuk  
 ABCD trapezoid  
 $|AB| \perp |BC|$   
 $2|AD| = \sqrt{8} |BC|$   
 $m(\widehat{ADC}) = \alpha = ?$



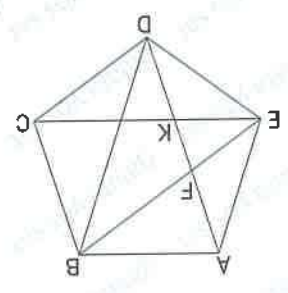
- A) 90 B) 95 C) 135 D) 140 E) 150

12.  $[AB] \perp [BC]$   
 $[AD] \perp [BD]$   
 $|AD| = 7$   
 $|AB| = |BC| = 25$   
 $A(ABCD) = ?$



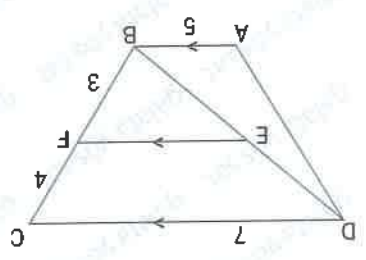
- A) 272 B) 290 C) 370 D) 372 E) 400

11. ABCDE düzgen beşgen  
 $\hat{C}(EFK) = 10^\circ$  olduğuna göre  
 $|BD| = ?$



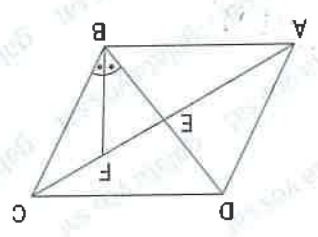
- A) 5 B) 6 C) 10 D) 12 E) 20

10.  $[AB] \parallel [EF] \parallel [CD]$   
 $|BF| = 3$   
 $|CF| = 4$   
 $|AB| = 5$   
 $|CD| = 7$   
 $\frac{A(BEF)}{A(ABD)} = ?$



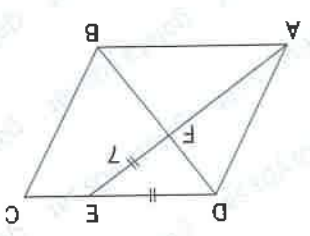
- A)  $\frac{1}{3}$  B)  $\frac{5}{3}$  C)  $\frac{25}{9}$  D)  $\frac{35}{9}$  E)  $\frac{49}{16}$

15. ABCD bir paralelkenar  
 $m(\widehat{DBF}) = m(\widehat{FBC})$   
 $3|EF| = 4|FC|$   
 $\frac{|AF|}{|FC|} = ?$



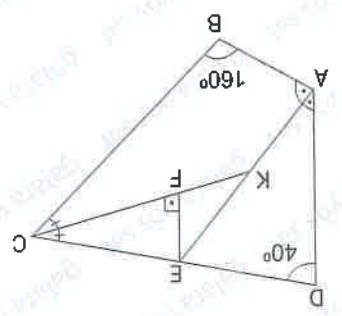
- A)  $\frac{7}{3}$  B)  $\frac{8}{3}$  C)  $\frac{11}{3}$  D)  $\frac{11}{4}$  E)  $\frac{11}{7}$

14. ABCD bir paralelkenar  
 $|DE| = |EF| = 7$   
 $|AF| - |EC| = ?$



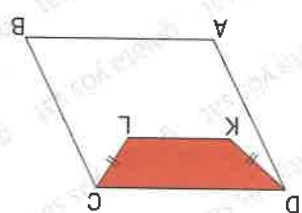
- A) 7 B) 8 C) 9 D) 10 E) 14

13.  $m(\widehat{BAE}) = m(\widehat{EAD})$   
 $m(\widehat{DCK}) = m(\widehat{KCB})$   
 $m(\widehat{ADC}) = 40^\circ$   
 $m(\widehat{ABC}) = 160^\circ$   
 $[EF] \perp [KC]$   
 $|EF| = 4\sqrt{3}$   
 $|KE| = ?$



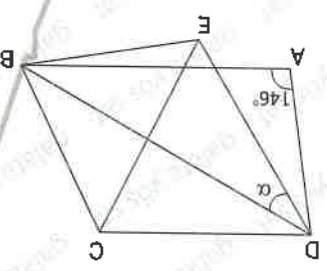
- A) 4 B) 5 C) 6 D) 7 E) 8

18. ABCD, eşkenar dörtgen  
 DCLK yamuk  
 DCLK trapezoid  
 $|DK| = |CL| = 5$   
 $|AB| = 14$   
 $|KL| = 8$   
 $A(KLCD) = ?$



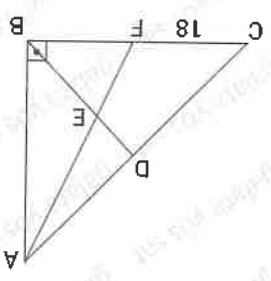
- A) 40 B) 42 C) 44 D) 46 E) 48

17. ABCD, bir eşkenar dörtgen  
 BEC, bir eşkenar üçgen  
 BEC, equilateral triangle  
 $m(\widehat{BAD}) = 146^\circ$   
 $m(\widehat{EDB}) = \alpha = ?$



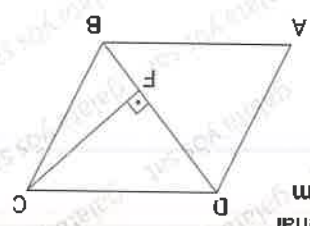
- A) 17 B) 20 C) 24 D) 28 E) 30

20. ABC bir üçgen  
 $[AB] \perp [CB]$   
 $|CF| = |FB|$   
 $|AE| = 2|EF|$   
 $|CF| = 18$   
 $|AE| = 20$   
 $|EB| = ?$



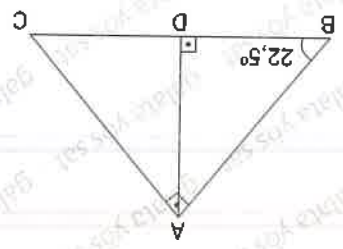
- A)  $\sqrt{13}$  B)  $2\sqrt{13}$  C)  $3\sqrt{13}$  D)  $4\sqrt{13}$  E)  $5\sqrt{13}$

16. ABCD bir paralelkenar  
 $[CF] \perp [BD]$   
 $|BD| = 12$   
 $|CF| = 8$   
 $A(\widehat{ABD}) = ?$



- A) 48 B) 56 C) 60 D) 72 E) 96

19. ABC bir üçgen  
 $[BA] \perp [AC]$   
 $[AD] \perp [BC]$   
 $|BC| = 8\sqrt{2}$   
 $m(\widehat{ABC}) = 22.5^\circ$   
 $|AD| = ?$



- A) 4 B)  $4\sqrt{2}$  C)  $5\sqrt{2}$  D) 8 E)  $8\sqrt{2}$



# Başarıya Götüren



Mat	Problem / Problems	Mat	Problem / Problems	Mat	Problem / Problems
Mat	Problem / Problems	Mat	Problem / Problems	Mat	Problem / Problems
Mat	Problem / Problems	Mat	Problem / Problems	Mat	Problem / Problems

Mat	Problem / Problems	Mat	Problem / Problems	Mat	Problem / Problems
Mat	Problem / Problems	Mat	Problem / Problems	Mat	Problem / Problems
Mat	Problem / Problems	Mat	Problem / Problems	Mat	Problem / Problems

Mat	Problem / Problems	Mat	Problem / Problems	Mat	Problem / Problems
Mat	Problem / Problems	Mat	Problem / Problems	Mat	Problem / Problems
Mat	Problem / Problems	Mat	Problem / Problems	Mat	Problem / Problems

## KTS-19

Mat	Logaritma / Logarithm	Mat	Logaritma / Logarithm	Mat	Logaritma / Logarithm
Mat	Logaritma / Logarithm	Mat	Logaritma / Logarithm	Mat	Logaritma / Logarithm
Mat	Logaritma / Logarithm	Mat	Logaritma / Logarithm	Mat	Logaritma / Logarithm

Mat	Karmaşık Sayılar / Complex numbers	Mat	Karmaşık Sayılar / Complex numbers	Mat	Karmaşık Sayılar / Complex numbers
Mat	Karmaşık Sayılar / Complex numbers	Mat	Karmaşık Sayılar / Complex numbers	Mat	Karmaşık Sayılar / Complex numbers
Mat	Karmaşık Sayılar / Complex numbers	Mat	Karmaşık Sayılar / Complex numbers	Mat	Karmaşık Sayılar / Complex numbers

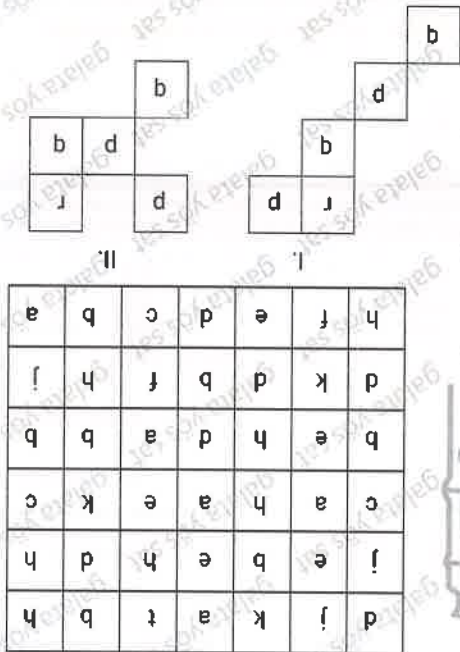
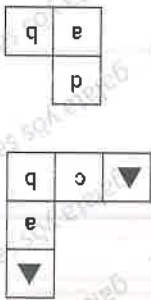
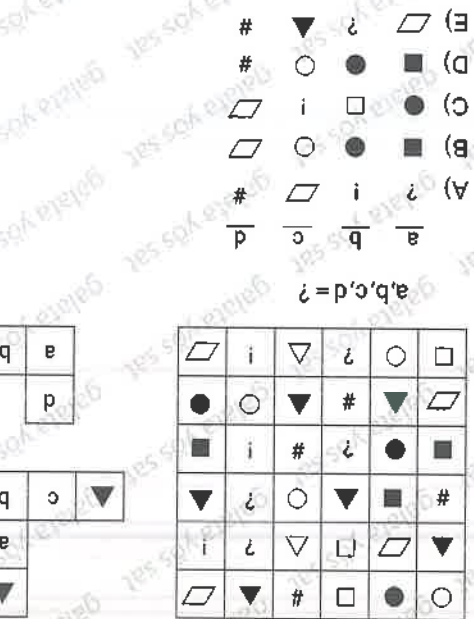
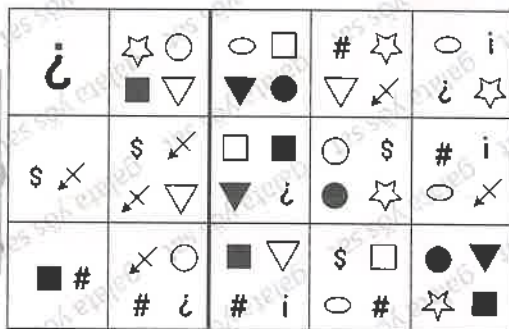
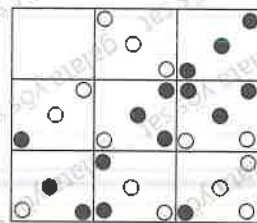
Mat	Modüler Aritmetik	Mat	Modüler Aritmetik	Mat	Modüler Aritmetik
Mat	Modüler Aritmetik	Mat	Modüler Aritmetik	Mat	Modüler Aritmetik
Mat	Modüler Aritmetik	Mat	Modüler Aritmetik	Mat	Modüler Aritmetik

Mat	İçim / Operation	Mat	İçim / Operation	Mat	İçim / Operation
Mat	İçim / Operation	Mat	İçim / Operation	Mat	İçim / Operation
Mat	İçim / Operation	Mat	İçim / Operation	Mat	İçim / Operation

Mat	Doğal Sayılar / Natural numbers	Mat	Doğal Sayılar / Natural numbers	Mat	Doğal Sayılar / Natural numbers
Mat	Doğal Sayılar / Natural numbers	Mat	Doğal Sayılar / Natural numbers	Mat	Doğal Sayılar / Natural numbers
Mat	Doğal Sayılar / Natural numbers	Mat	Doğal Sayılar / Natural numbers	Mat	Doğal Sayılar / Natural numbers

Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer
Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer
Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer

Mat	İçim Ücret ve Rasyonel Sayılar	Mat	İçim Ücret ve Rasyonel Sayılar	Mat	İçim Ücret ve Rasyonel Sayılar
Mat	İçim Ücret ve Rasyonel Sayılar	Mat	İçim Ücret ve Rasyonel Sayılar	Mat	İçim Ücret ve Rasyonel Sayılar
Mat	İçim Ücret ve Rasyonel Sayılar	Mat	İçim Ücret ve Rasyonel Sayılar	Mat	İçim Ücret ve Rasyonel Sayılar



Her harft farkli bir sembol göstermektedir. I ve II yukarıdaki tablonun belirli bir parçasıdır. Buna göre r hangi harfi gösterir ?

Each letter shows a different symbol. I and II are a specific part of the above table. So what letter does r denote?

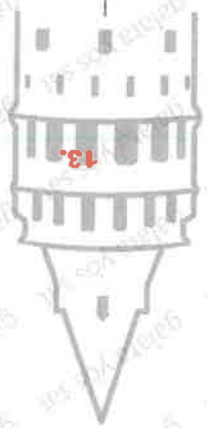
A) a B) h C) k D) b E) j



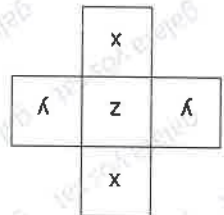


?	K↶	K↶
S↷	S↷	S↷
A↷	A↷	A↷

- A) K↶
- B) K↷
- C) K↸
- D) K↵
- E) K↹



- A) c
- B) a
- C) b
- D) f
- E) g



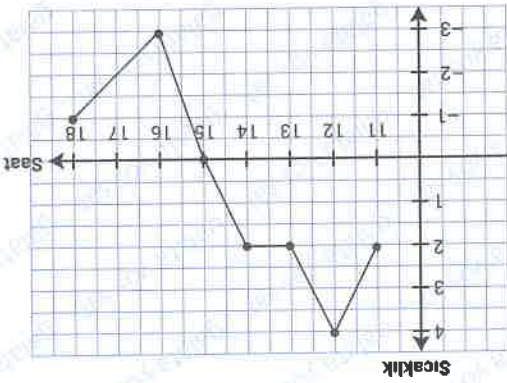
f	e	g	b	b	g	f
c	c	g	g	a	b	c
e	d	d	a	f	g	e
b	c	a	f	b	f	b
b	e	d	g	f	g	b
b	g	a	d	c	d	b
a	f	e	d	c	b	a

?	○	▽	▽	▽●
■	■○	—	—	□●
■	■	▽	▽	□▽
□▽	□●	■▽	▽○	□

- A) ▽
- B) ▽
- C) ○
- D) ●
- E) —

- A) ○○
- B) △○
- C) □○
- D) ○○
- E) ○○

?	△	○
□	△	□
▽	△	▽

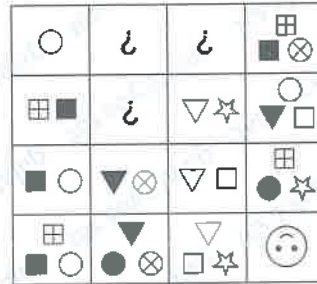
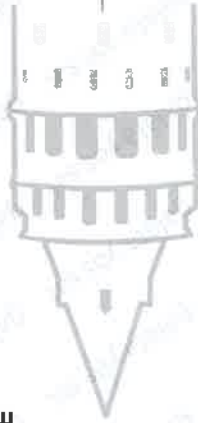


16. 17. ve 18. soruları grafiğe göre cevaplayınız.  
Answer the questions 16 - 18 according to the graph.

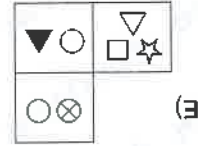
Yukarıdaki grafiğe bir bölgenin meteoroloji istasyonunda belli saatlerde ölçülen sıcaklıklarını gösterilmektedir.  
The graphic above shows the temperatures of a region measured at certain hours at a meteorology station.

16. Hangi saatte ölçülen sıcaklığın, bir önceki saatte ölçülene göre farkı en fazladır?  
At what hour is the difference between the temperature measured in the previous hour the most?

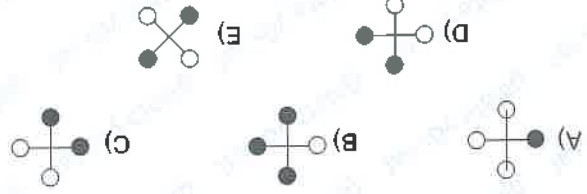
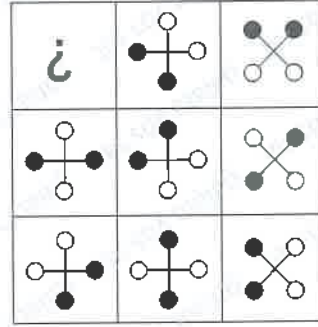
- A) 12 B) 14 C) 15 D) 16 E) 18



14.



15.

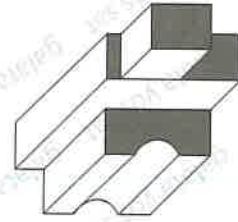


17. Hangi saatte ölçülen sıcaklık, bir önceki saatte ölçülen sıcaklıkla aynıdır ?  
At what hour is the temperature measured at the same hour as the previous hour?

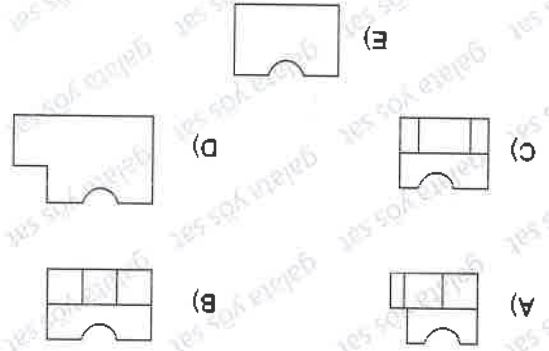
A) 12 B) 13 C) 14 D) 16 E) 18

18. En yüksek ve en düşük sıcaklıklar hangi saatlerde ölçülmüştür ?  
When were the highest and lowest temperatures measured?

En yüksek	11	17
En düşük	13	18
A)	11	17
B)	13	18
C)	14	16
D)	12	15
E)	12	16



Yukarıdaki şeklin önden görünüşü hangisidir ?  
What is the front view of the figure above?

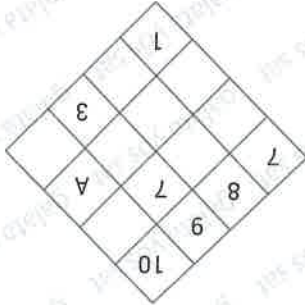


19.

21.

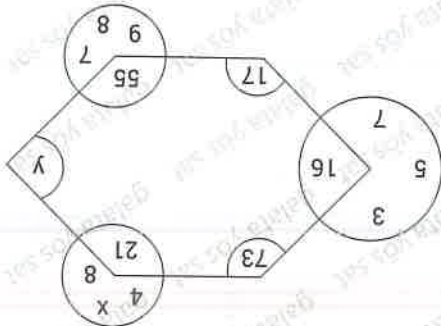


- Belli bir kurala göre oluşturulan şekilde A kaçtır ?  
The shape is created according to a rule. What is A?
- A) 2 B) 4 C) 6 D) 7 E) 8



A) 12,54 B) 11,67 C) 11,76 D) 12,86 E) 9,28

$$x, y = ?$$



20.

A) 113 B) 112 C) 110 D) 109 E) 97

Sayı dizisi belli bir kurala dizilmiştir. Buna göre 7. terim 77 olsaydı 3. terim kaç olurdu ?  
The sequence of numbers is arranged in a certain rule. So if 7th term was 77, what would the 3rd term be?

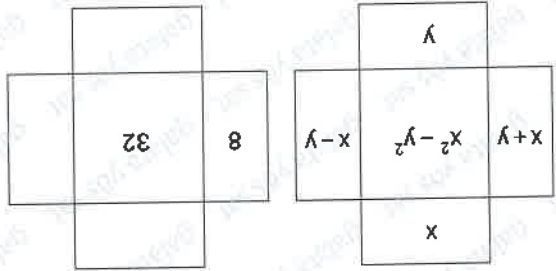
98	97	94	89	82	73	62	49	34	17
----	----	----	----	----	----	----	----	----	----

22.



- A) 26 B) 28 C) 30 D) 32 E) 34

$$4x + 3y = ?$$



25.



E)



D)



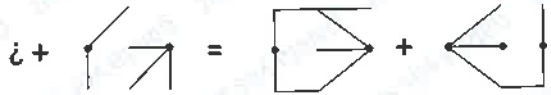
B)



A)



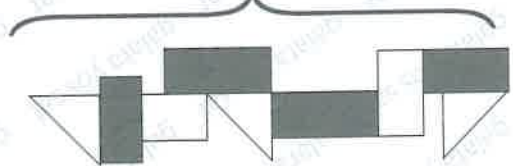
C)



24.

- A) 21 B) 22 C) 23 D) 24 E) 25

$$K = ?$$

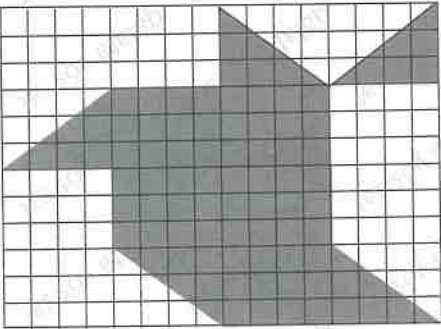


23.

26.

12a

16a

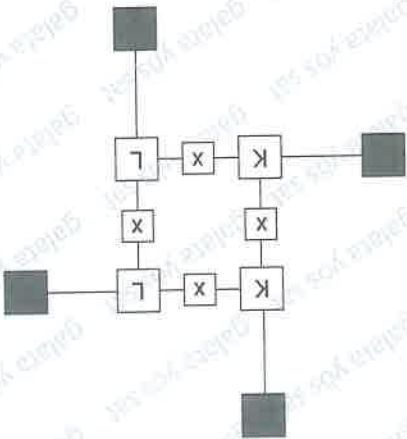


Taralı Alan = ?  $a^2$   
Shaded area = ?  $a^2$

- A) 84 B) 90 C) 124 D) 144 E) 108

- A) 3 B) 6 C) 9 D) 12 E) 15

Şekilde siyah karelere yazılan sayıların toplamı 144 olduğuna göre  $K+L$  toplamı kaçtır ?  
Since the sum of the numbers written on the black squares in the figure is 144, what is the sum of  $K+L$ ?



- A) 1 B) 2 C) 3 D) 4 E) 5

M	L	K	+
7L	$\frac{2}{M}$		L
4L+8			M

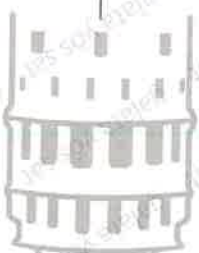
$$\Rightarrow M - \frac{K}{L}$$

29.

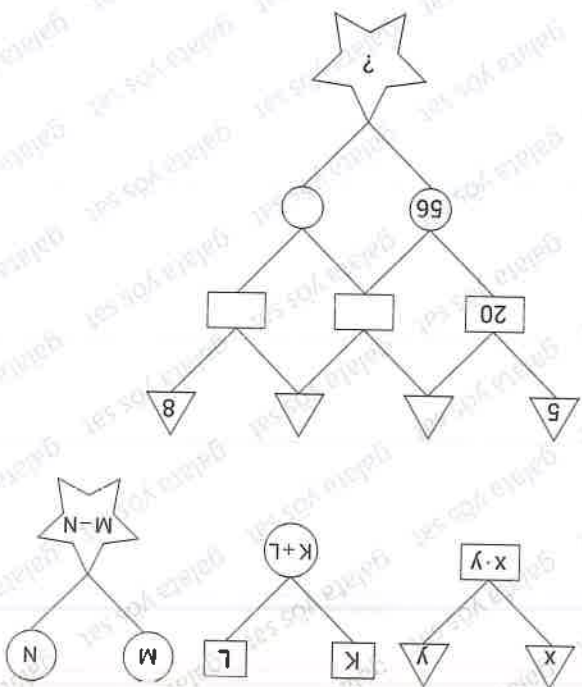
- A) 3 B) 4 C) 5 D) 6 E) 7

1.  $\log_2 [1 + \log_3 x] = 1 = x = ?$

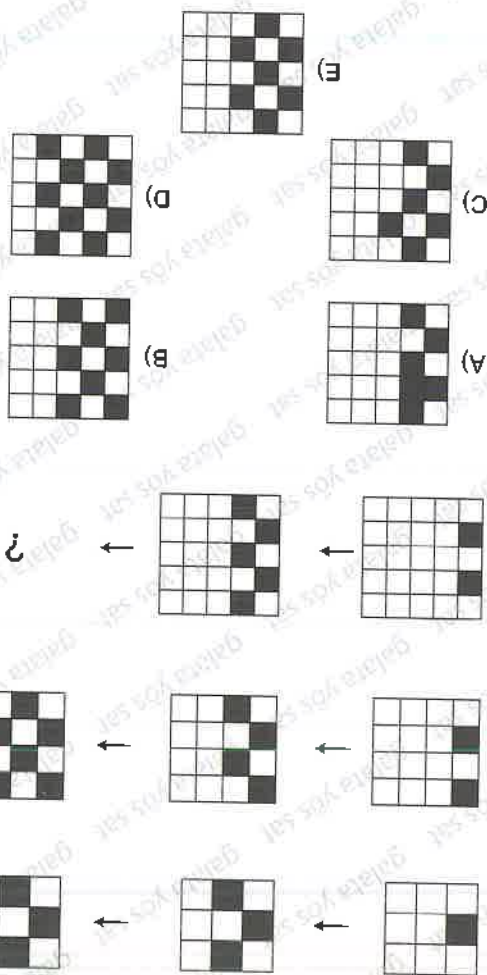
Matematik Maths



- A) -50 B) -52 C) -64 D) -83 E) 64



30.



28.



2.  $\log 2 = a$  ve  $\log 3 = b = \log \frac{8}{9} = ?$

- A)  $a+2b$   
 B)  $a-2b$   
 C)  $3a+2b$   
 D)  $3a-2b$   
 E)  $a+3b$

5.  $x = \log_9 10$ ,  $y = \log 9$ ,  $z = \log_{\sqrt{5}} 5$

$x, y, z$  sıralaması nasıldır?

How is the  $x, y, z$  order?

- A)  $x > y > z$   
 B)  $z > x > y$   
 C)  $z > y > x$   
 D)  $y < x < z$   
 E)  $y > z > x$

3.  $\frac{1}{1 - \frac{1}{1 + \log_3 2}} = ?$

- A)  $\log 2$   
 B)  $\log 6$   
 C)  $\log_6 2$   
 D) 1  
 E)  $\log_2 6$

4.  $\log 2 = 0,30103 \Rightarrow \log 25 = ?$

- A) 1,29794  
 B) 1,39764  
 C) 1,39763  
 D) 1,39794  
 E) 1,49763

7.  $\log_{\sqrt{2}}(2 \cdot \sqrt[3]{4}) = ?$

- A)  $\frac{3}{10}$   
 B) 3  
 C)  $\frac{3}{8}$   
 D) 2  
 E)  $\frac{3}{5}$

6.  $(\log_2 x)^2 - \log_2 x^4 - \log_2 32 = 0 \Rightarrow S.S = ?$

- A)  $\left\{ \frac{2}{1} \right\}$   
 B)  $\left\{ \frac{8}{1} \right\}$   
 C)  $\left\{ \frac{1}{8}, 32 \right\}$   
 D)  $\left\{ \frac{2}{1}, 32 \right\}$   
 E)  $\{ 32 \}$

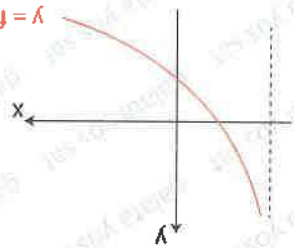


8.  $f(x) = 2^{4x-1} = f^{-1}(x) = ?$

- A)  $4 \log_2 x$  B)  $\frac{1}{2} \log_4 x$  C)  $\frac{1}{2} \log_4 x$  D)  $\frac{4}{1 + \log_2 x}$  E)  $\frac{4}{1 - \log_2 x}$

11.  $\sum_{k=1}^{99} \log \left( \frac{k+1}{k} \right) = ?$

- A) -2 B) -1 C) 0 D) 1 E) 2



Yükarıda  $f(x)$  fonksiyonunun grafiği verilmiştir. Buna göre  $f(x)$  fonksiyonunun denklemini aşağıdakilerden hangisi olabilir ?

The graph of the function  $f(x)$  is given above. So, which one can be the equation of the function  $f(x)$  ?

- A)  $y = \log_1(3x+2)$  B)  $y = \log_2(3x+2)$  C)  $y = \log_1(x-1)$  D)  $y = \log_2(x+1)$  E)  $y = \log_1(x-4)$



13.  $\sum_{k=1}^n (2k-1) = 144 = \prod_{k=1}^n (1-k)$  = ?

- A)  $\frac{4}{1}$  B)  $\frac{5}{1}$  C)  $\frac{6}{1}$  D)  $\frac{7}{1}$  E)  $\frac{8}{1}$

10.  $\sum_{k=1}^5 (3k-1) = ?$

- A) 38 B) 39 C) 40 D) 41 E) 2

14.  $x^2 - 2x - 3 = 0$   
 = denkleminin kökleri / The roots of the equation  
 $x_1$  ve  $x_2$  ise  $\prod_{k=1}^2 (3x_k - 1) = ?$   
 A) -3 B) -4 C) -6 D) -8 E) -32

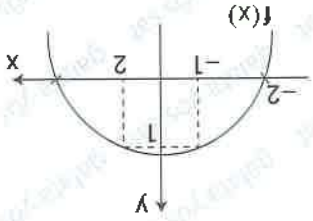
15.  $\prod_{n=1}^{10} \sum_{k=1}^n k(k+1) = ?$

- A)  $\frac{7}{1}$  B)  $\frac{8}{1}$  C)  $\frac{9}{1}$  D)  $\frac{10}{1}$  E)  $\frac{11}{1}$



16.  $x^6 = 3^2 \sqrt{3} = x = ?$   
 A)  $3^6$  B)  $3^{2\sqrt{2}}$  C)  $3^{\sqrt{2}}$  D)  $\sqrt{3}$  E)  $3\sqrt{3}$

19. Şekilde  $f(x)$  fonksiyonunun grafiği verilmiştir.  $f(x)$  is given in the figure.  $f(x) = 1$  denkleminin sayılan değerinin toplamı kaçtır? What is the sum of the values that satisfy the equation  $f(x) = 1$ ?



- A) 1 B)  $\frac{b}{a}$  C)  $\frac{a}{b}$  D)  $a-b$  E)  $a+b$

18.  $\left( a^2 - \frac{1}{b} \right)^n \cdot \left( a - \frac{1}{b} \right)^{-2n} = \left( b^2 - \frac{1}{a} \right)^{-n} \cdot \left( b + \frac{1}{a} \right)^{2n} = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

17.  $16^{n+1} \cdot 25^{2n} \cdot 45$  sayısı 15 basamaklı bir sayı olduğuna göre  $n$  kaçtır?  $16^{n+1} \cdot 25^{2n} \cdot 45$  is a 15-digit number, what is  $n$ ?

- A) 1 B) 2 C) 3 D) 4 E) 5

20.  $f(x) = \begin{cases} 5, & x < 3 \\ 2, & x \geq 3 \end{cases}$

fonksiyonunun görüntü kümesindeki elemanların  
çarpımı kaçtır?  
What is the product of the elements in the image set  
of the function?

- A) 8 B) 9 C) 10 D) 12 E) 15

23.  $\frac{(3^x - 8)(12x - 11)}{x^2 - 13x} > 0$

esitliğini sağlayan  $x$  in alabileceği kaç farklı doğal sayı  
değeri vardır?  
How many different natural number values  $x$  can take that  
satisfy its inequality?

- A) 6 B) 7 C) 8 D) 10 E) 11

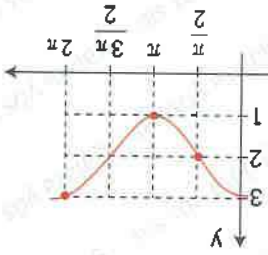
21.  $P(x) = x^5 - 15x^4 - 31x^3 - 50x^2 - 13x - 18$  veriliyor.

Buna göre,  $P(8x + 9)$  polinomunun katsayılar toplamı  
kaçtır?

What is the sum of the coefficients of the polynomial  
 $P(8x + 9)$ ?

- A) 28 B) 35 C) 40 D) 50 E) 86

24. Şekilde  $[0, 2\pi]$  aralığında  
grafığı verilen  $y = f(x)$   
fonksiyonunun denklemini  
asğıdakilerden hangisidir?  
Which of the following is the  
equation of the function  
graphed  $y = f(x)$  in the inter-  
val  $[0, 2\pi]$  in the figure?



- A)  $y = 2 - \cos x$   
B)  $y = \cos 2x$   
C)  $y = 2 + \cos x$   
D)  $y = 2 + \cos \frac{x}{2}$   
E)  $y = 1 + \cos x$

22.  $x^2 - 5x + 2k - 1 = 0$

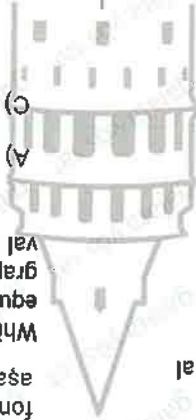
denkleminin kökleri  $a$  ve  $b$  dir.  
 $a$  and  $b$  are roots.

$a^2 + 4ab + 3b^2 = 35 = k = ?$

- A)  $\frac{2}{3}$  B) 2 C)  $\frac{5}{2}$  D) 3 E)  $\frac{7}{2}$

25.  $z = 2 \cdot (\cos 15^\circ + i \cdot \sin 15^\circ)$   
 $= |z^3| = ?$

- A) 4 B) 6 C) 8 D) 12 E) 16

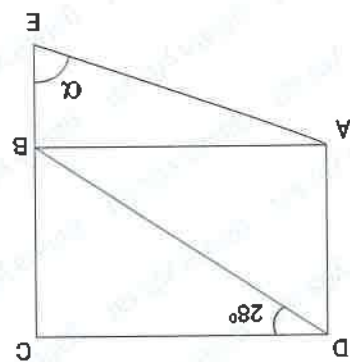


30.  $z = -16$  sayısının kareköklerinden biri aşağıdakilerden hangisidir?  
Which of the following is one of the square roots of the number  $z = -16$  ?

A) -4! B) -4 C) -2! D) 2! E) 16!

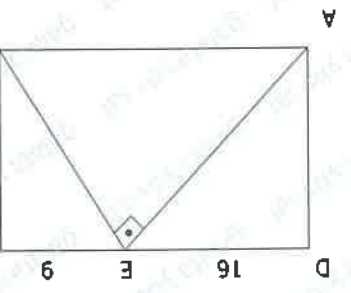
Geometri Geometry

1. ABCD dikdörtgen  
ABCD rectangular  
 $m(\widehat{BDC}) = 28^\circ$   
 $|BD| = |CE|$   
 $m(\widehat{AEB}) = \alpha = ?$



A) 52 B) 54 C) 56 D) 59 E) 62

2. ABCD dikdörtgen  
ABCD rectangular  
[AE]  $\perp$  [EB]  
 $|EC| = 9$   
 $|DE| = 16$   
 $\widehat{C(ABCD)} = ?$



A) 50 B) 60 C) 64 D) 74 E) 80

26.  $z_1 = 3 \cdot \text{cis} 10^\circ$

$z_2 = 4 \cdot \text{cis} 80^\circ$

$\Rightarrow z_1 \cdot z_2 = ?$

- A) 12! B) -12! C) -12 D) 12 E) 12+12!

27.  $\tan x - \cot x = 1 \Rightarrow \tan^6 x + \cot^6 x$

- A) 6 B) 12 C) 18 D) 24 E) 30

28.  $P(x,y) = x^4 y^5 - xy = P(1-i, 1+i) = ?$

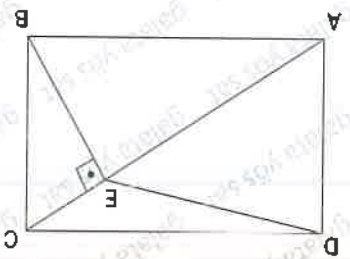
- A) 16-14! B) 14-6! C) 16+4! D) 16+16! E) 14+16!

29.  $z = \left( \frac{1+i}{1-i} \right)^{50} = ?$

- A) -1 B) -! C) 0 D) 1 E) !

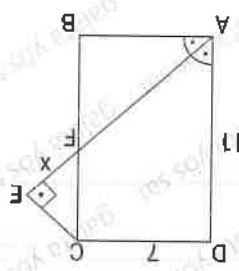


3. ABCD dikörtgen  
 ABCD rectangulär  
 $[CE] \perp [BE]$   
 $|CE| = 2$  cm  
 $|AE| = 8$  cm  
 $|DE| = ?$



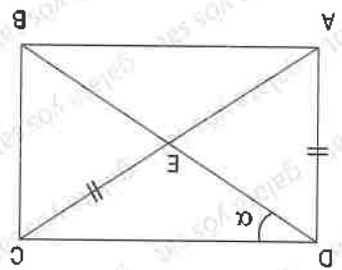
- A)  $\sqrt{13}$   
 B)  $2\sqrt{13}$   
 C)  $3\sqrt{13}$   
 D)  $4\sqrt{13}$   
 E)  $5\sqrt{13}$

6. ABCD dikörtgen  
 ABCD rectangulär  
 $[CE] \perp [AE]$   
 $m(\widehat{DAE}) = m(\widehat{EAB})$   
 $|CD| = 7$   
 $|AD| = 11$   
 $|FE| = x = ?$



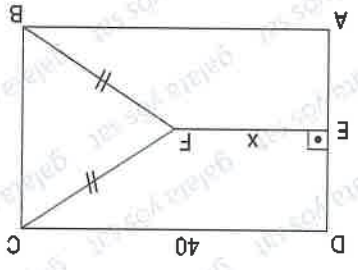
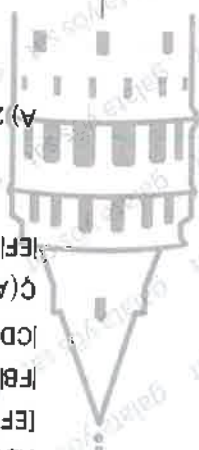
- A)  $2\sqrt{2}$   
 B)  $3\sqrt{2}$   
 C)  $4\sqrt{2}$   
 D)  $5\sqrt{2}$   
 E) 7

4. ABCD dikörtgen  
 ABCD rectangulär  
 $|AD| = |EC|$   
 $m(\widehat{BDC}) = \alpha = ?$



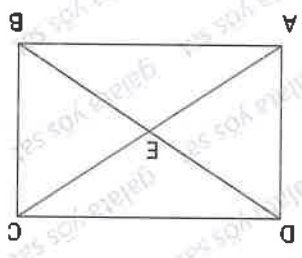
- A) 30  
 B) 45  
 C) 60  
 D) 65  
 E) 70

7. ABCD dikörtgen  
 ABCD rectangulär  
 $[EF] \perp [DA]$   
 $|FB| = |FC| = 20$   
 $|CD| = 40$   
 $\widehat{C}(ABCD) = 144$   
 $|EF| = x = ?$



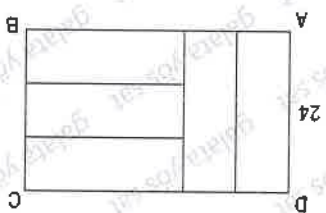
- A) 24  
 B) 25  
 C) 26  
 D) 28  
 E) 32

5. ABCD dikörtgen  
 ABCD rectangulär  
 $|AE| = 3x + 2$   
 $|BE| = 7x - 8$   
 $|BD| = ?$



- A) 14  
 B) 15  
 C) 16  
 D) 17  
 E) 19

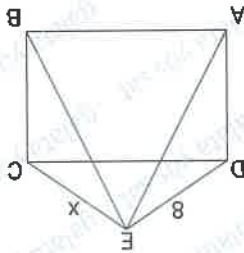
8. Kisa kenar 24 cm olan ABCD dikörtgeni 5 eşit dikdörtgene bölmüştür. The ABCD rectangle, whose short side is 24 cm, is divided into 5 equal rectangles.



- A) 100  
 B) 110  
 C) 118  
 D) 128  
 E) 132

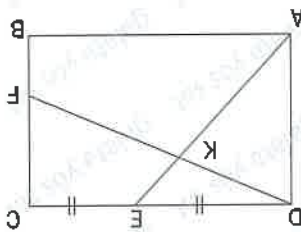


9. ABCD dikdörtgen  
 $|AE| = 7$   
 $|DE| = 8$   
 $|EB| = 9$   
 $|EC| = x = ?$



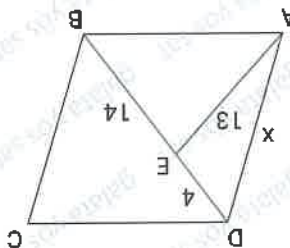
- A)  $\sqrt{61}$  B)  $\sqrt{62}$  C)  $\sqrt{71}$  D)  $\sqrt{85}$  E)  $4\sqrt{6}$

10. ABCD dikdörtgen  
 $|DE| = |EC|$   
 $|CF| = 4$  |FB|  
 $|AE| = 21$   
 $|EK| = ?$



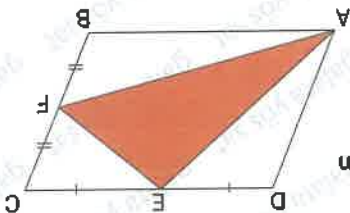
- A) 4 B) 5 C) 6 D) 7 E) 9

11. ABCD eşkenar dörtgen  
 $|DE| = 4$   
 $|AE| = 13$   
 $|EB| = 14$   
 $|AD| = x = ?$



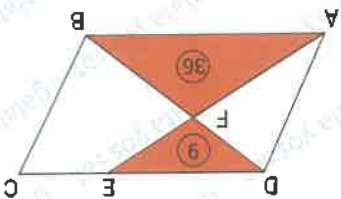
- A) 12 B) 13 C) 14 D) 15 E) 16

12. ABCD paralelkenar  
 $|DE| = |EC|$   
 $|CF| = |FB|$   
 $A(\triangle FE) = 12$   
 $A(\text{ABCD}) = ?$



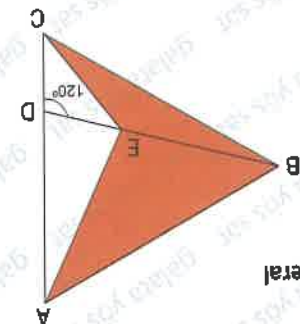
- A) 32 B) 44 C) 46 D) 48 E) 50

13. ABCD paralelkenar  
 $A(\triangle DEF) = 9 \text{ m}^2$   
 $A(\triangle ABF) = 36 \text{ m}^2$   
 $\frac{|FA|}{|EF|} = ?$



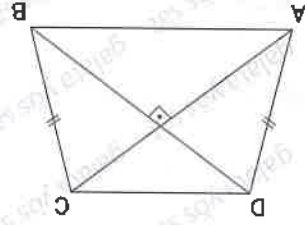
- A)  $\frac{1}{2}$  B)  $\frac{1}{4}$  C)  $\frac{5}{1}$  D)  $\frac{6}{1}$  E)  $\frac{9}{1}$

14. ABCE konkav dörtgen  
 ABCE konkav quadrilateral  
 $m(\widehat{BDC}) = 120^\circ$   
 $|AC| = 8$   
 $|BE| = 3\sqrt{2}$   
 $A(\text{ABCE}) = ?$

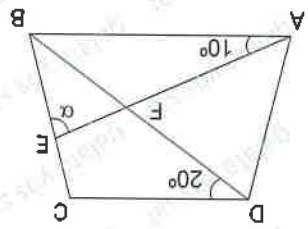


- A)  $6\sqrt{6}$  B)  $10\sqrt{6}$  C)  $14\sqrt{2}$  D)  $12\sqrt{6}$  E)  $16\sqrt{2}$

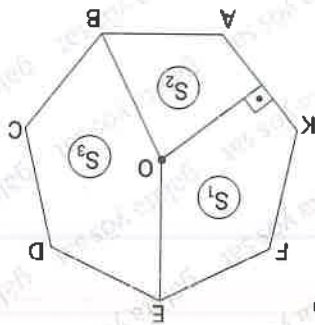
17. ABCD bir yamuk  
 ABCD trapezoid  
 $|AD| = |BC|$   
 $[AC] \perp [BD]$   
 $|CD| = 4$   
 $|AB| = 6$   
 $|AC| = ?$   
 A) 5 B)  $5\sqrt{2}$  C)  $6\sqrt{2}$  D) 6 E)  $7\sqrt{2}$



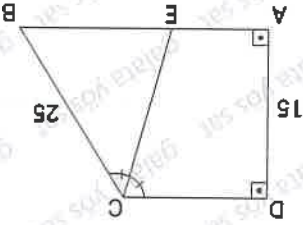
16. ABCD bir yamuk  
 ABCD trapezoid  
 $|AD| = |BC|$   
 $|AE| = |BD|$   
 $m(\widehat{BAE}) = 10^\circ$   
 $m(\widehat{BDC}) = 20^\circ$   
 $m(\widehat{AEB}) = \alpha = ?$   
 A) 70 B) 75 C) 80 D) 85 E) 95



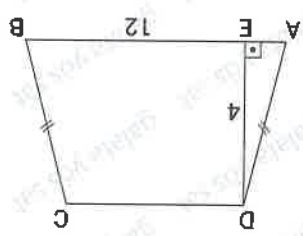
15. ABCDEF düzün yedigen  
 ABCDEF yedigen  
 O: ABCDEF yedigen  
 ağırlık merkezi  
 O = ABCDEF heptagon  
 center of gravity  
 $\frac{S_1 - S_2}{S_3} = ?$   
 A) 1 B) 2 C) 3 D) 4 E) 5



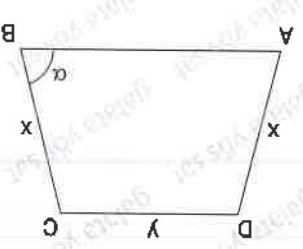
20. ABCD bir yamuk  
 ABCD trapezoid  
 $[AD] \perp [AB]$   
 $m(\widehat{DCE}) = m(\widehat{ECB})$   
 $|AD| = 15$   
 $|BC| = 25$   
 $|DC| - |AE| = ?$   
 A) 3 B) 4 C) 5 D) 6 E) 7



19. ABCD bir yamuk  
 ABCD trapezoid  
 $|AD| = |BC|$   
 $|DE| = 4$   
 $|EB| = 12$   
 $A(\widehat{ABCD}) = ?$   
 A) 24 B) 30 C) 34 D) 44 E) 48



18. ABCD bir yamuk  
 ABCD trapezoid  
 $|AD| = |BC| = x$   
 $|CD| = y$   
 $|AB| = x + y$   
 $m(\widehat{ABC}) = \alpha = ?$   
 A) 30 B) 40 C) 45 D) 50 E) 60



Mat	Problems / Problems	Mat	Math / Logic	Mat	Order - Order
IO	Problems / Problems	IO	Order - Order	IO	Order - Order
Geo	Order - Order	Geo	Order - Order	Geo	Order - Order

Mat	Order - Order	Mat	Order - Order	Mat	Order - Order
IO	Order - Order	IO	Order - Order	IO	Order - Order
Geo	Order - Order	Geo	Order - Order	Geo	Order - Order

Mat	Order - Order	Mat	Order - Order	Mat	Order - Order
IO	Order - Order	IO	Order - Order	IO	Order - Order
Geo	Order - Order	Geo	Order - Order	Geo	Order - Order

## KTS-20

Mat	Logaritma Temel Kavramlar	Mat	Order - Order	Mat	Order - Order
IO	Order - Order	IO	Order - Order	IO	Order - Order
Geo	Order - Order	Geo	Order - Order	Geo	Order - Order

Mat	Karmaşık Sayılar / Complex numbers	Mat	Order - Order	Mat	Order - Order
IO	Order - Order	IO	Order - Order	IO	Order - Order
Geo	Order - Order	Geo	Order - Order	Geo	Order - Order

Mat	Modüler Aritmetik	Mat	Order - Order	Mat	Order - Order
IO	Order - Order	IO	Order - Order	IO	Order - Order
Geo	Order - Order	Geo	Order - Order	Geo	Order - Order

Mat	İtem / Operator	Mat	Order - Order	Mat	Order - Order
IO	Order - Order	IO	Order - Order	IO	Order - Order
Geo	Order - Order	Geo	Order - Order	Geo	Order - Order

Mat	Doğal Sayılar / Natural numbers	Mat	Order - Order	Mat	Order - Order
IO	Order - Order	IO	Order - Order	IO	Order - Order
Geo	Order - Order	Geo	Order - Order	Geo	Order - Order

Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Order - Order	Mat	Order - Order
IO	Order - Order	IO	Order - Order	IO	Order - Order
Geo	Order - Order	Geo	Order - Order	Geo	Order - Order

Mat	İfadenin Üçüncü ve Dördüncü Sayılar	Mat	Order - Order	Mat	Order - Order
IO	Order - Order	IO	Order - Order	IO	Order - Order
Geo	Order - Order	Geo	Order - Order	Geo	Order - Order





A) a B) b C) c D) d E) e

[(b \* a) \* (e \* c)] \* (b \* d) = ?

e	c	d	e	a	b
d	b	c	d	e	a
c	a	b	c	d	e
b	e	a	b	c	d
a	d	e	a	b	c
*	a	b	c	d	e

2.



4.

?		

- A)
- B)
- C)
- D)
- E)

- A)
- B)
- C)
- D)
- E)

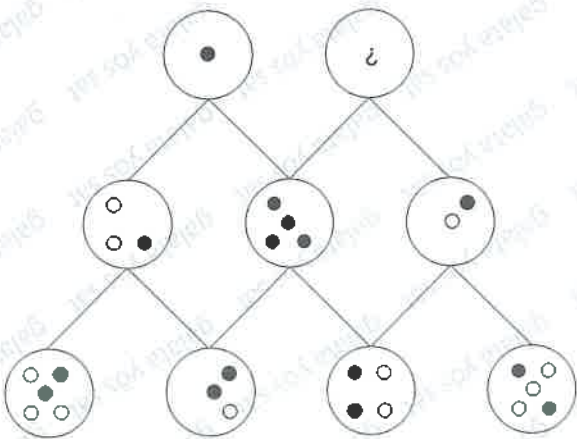
	?	

1.

10

3.

- A)
  - B)
  - C)
  - D)
  - E)
- |  |   |  |
|--|---|--|
|  | ? |  |
|  |   |  |
|  |   |  |



- (A)
- (B)
- (C)
- (D)
- (E)

	?	

- (A)
- (B)
- (C)
- (D)
- (E)

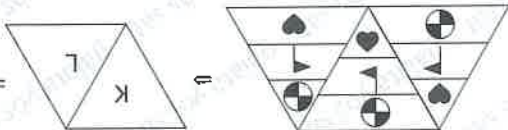
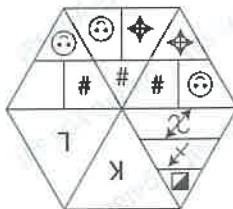


7.

	?	

- (A)
- (B)
- (C)
- (D)
- (E)

5.



- (A)
- (B)
- (C)
- (D)
- (E)

6.

E) TBL

C) YEL

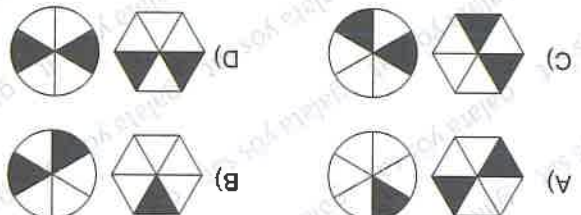
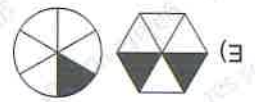
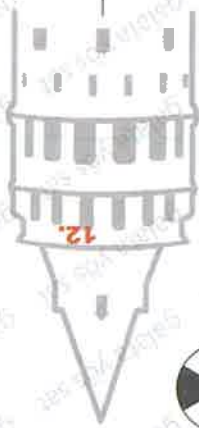
D) MEY

A) İBL

B) ÖYS

SAT	KUR	SU	TUS
KDU	ZÜ	YÖS	ÜÜY
TİM	BE	YLI	?
GAL	ATA	EĞİ	LTE

10.



		?	
	?		

9.

E)

C)

D)

A)

B)

		?

D) 

#	?
#	i

E) 

#	!
#	?

A) 

#	?
!	!

B) 

#	?
!	!

C) 

#	!
!	?

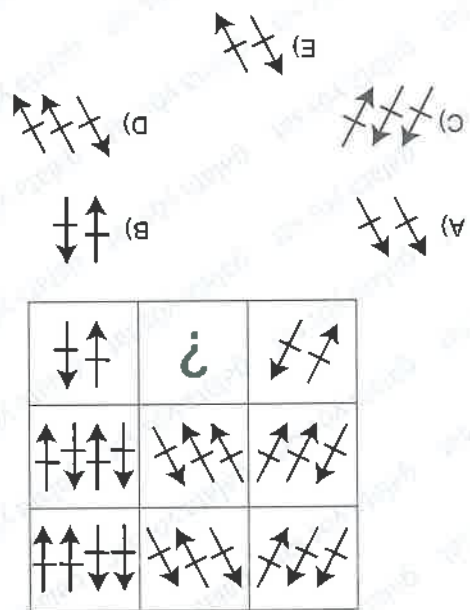
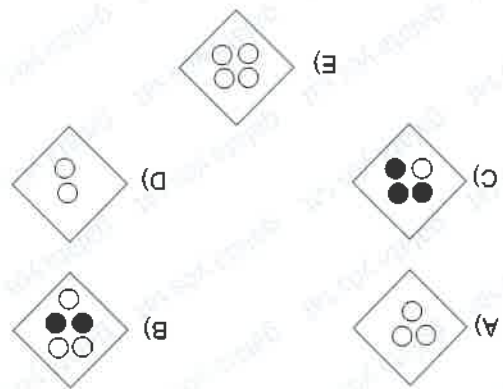
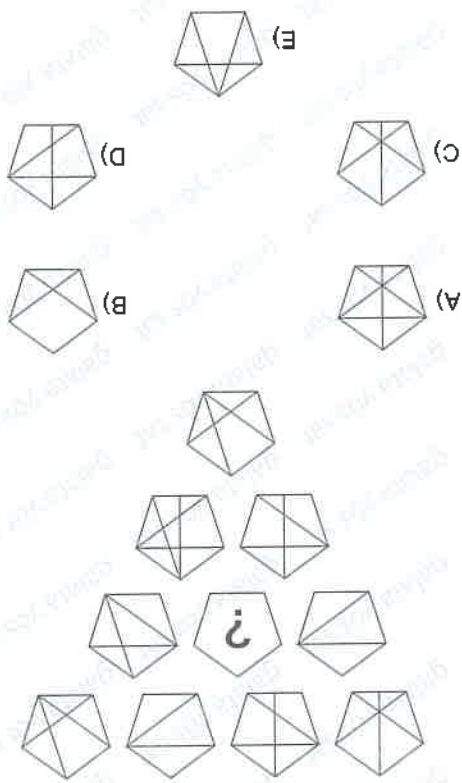
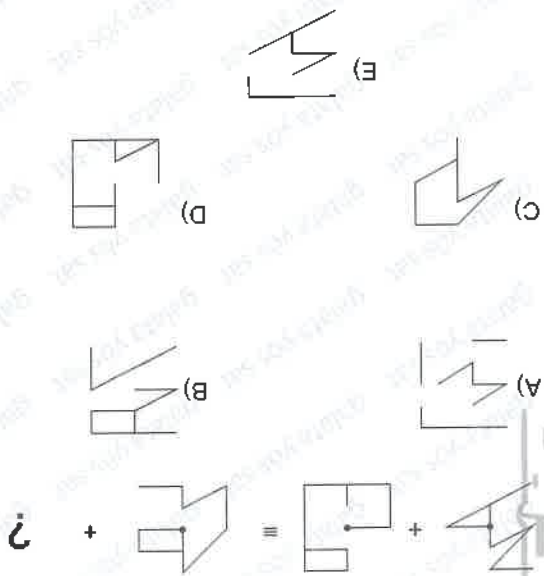
<table border="1"><tr><td>L</td><td>☾</td></tr><tr><td>K</td><td>☼</td></tr></table>	L	☾	K	☼	?					
L	☾									
K	☼									
<table border="1"><tr><td>K</td><td>☼</td></tr><tr><td>L</td><td>☾</td></tr></table>	K	☼	L	☾	<table border="1"><tr><td>i</td><td>!</td></tr><tr><td>s</td><td>#</td></tr></table>	i	!	s	#	
K	☼									
L	☾									
i	!									
s	#									
<table border="1"><tr><td>K</td><td>☼</td></tr><tr><td>L</td><td>☾</td></tr></table>	K	☼	L	☾	<table border="1"><tr><td>i</td><td>!</td></tr><tr><td>?</td><td>#</td></tr></table>	i	!	?	#	
K	☼									
L	☾									
i	!									
?	#									

11.

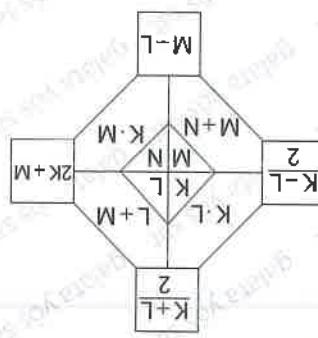
YÖS

KTS 20

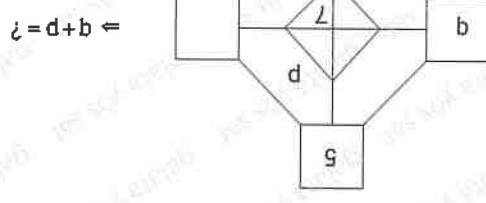




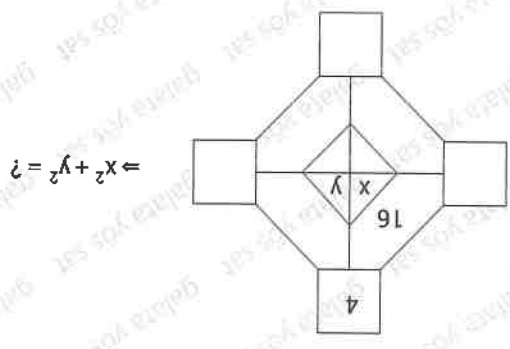
19 - 20 sorular yukarıdaki tabloya göre cevaplandırılacaktır.  
 Questions 19-20 will be answered according to the above table.



19. A) 10 B) 11 C) 12 D) 13 E) 14

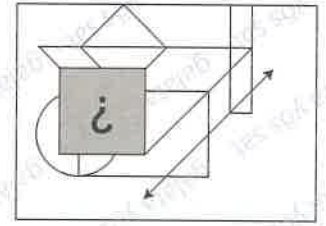


20. A) 10 B) 11 C) 12 D) 13 E) 14

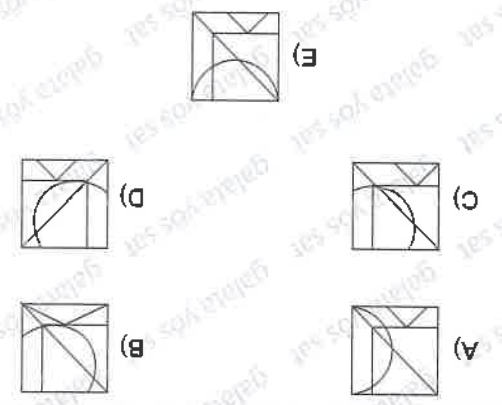


A) 28 B) 32 C) 41 D) 94 E) 112

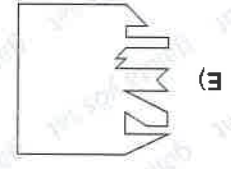
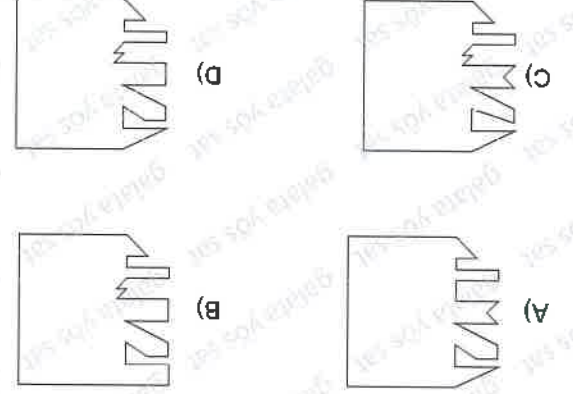
18.

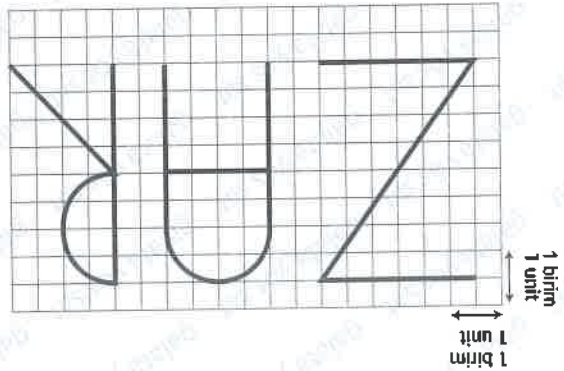


18. Sekilde boş alanın yerine aşağıdaki hangi şekil gelir? What figure below replaces the empty space in the figure?



17.

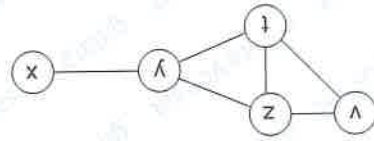




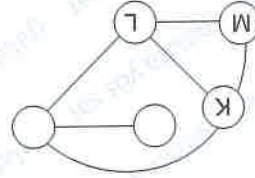
21.

ZAR kelimisini yazmak için kaç birim tel kullanılmıştır ?  
 ( $\pi = 3$  alınız)  
 How many units of wire are used to write the word ZAR?

- A)  $29 + 4\sqrt{2}$   
 B)  $26 + 2\sqrt{2}$   
 C)  $34 + 3\sqrt{2}$   
 D)  $29 + 2\sqrt{2}$   
 E)  $26 + 3\sqrt{2}$



I.

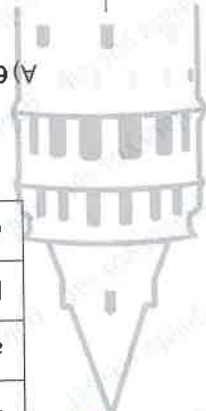


II.

K, L, M = ?

- A)  $\overline{z}$   $\overline{t}$   $\overline{v}$   
 B)  $\overline{y}$   $\overline{t}$   $\overline{v}$   
 C)  $\overline{t}$   $\overline{y}$   $\overline{v}$   
 D)  $\overline{v}$   $\overline{z}$   $\overline{y}$   
 E)  $\overline{x}$   $\overline{z}$   $\overline{v}$

22.



24.

+	a	b	c
a	c+6		
b		a-10	
c			

x	a	b	c
a			8
b			
c			

$= a^2 + c^2 = ?$

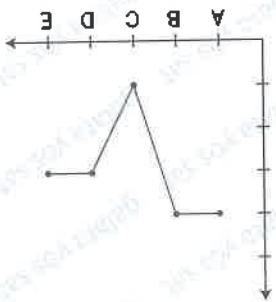
- A) 60  
 B) 70  
 C) 80  
 D) 84  
 E) 90

- A) 89  
 B) 73  
 C) 44  
 D) 32  
 E) 26

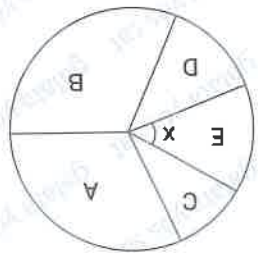
3	4	5	6
42	54	66	48
X	Y		

$X+Y = ?$

23.



$\Rightarrow x = ?$



- A) 48  
 B) 54  
 C) 72  
 D) 84  
 E) 90

			m
	α	48	72
	k		54
x	k	α	m

A) 336 B) 576 C) 504 D) 432 E) 448

$k \times \alpha \times m = ?$

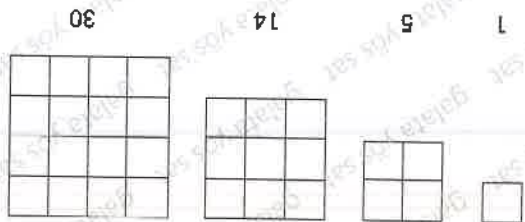
28.

A) 631 B) 251 C) 741 D) 731 E) 632

27.  $\begin{matrix} 2 & 4 & 8 & 3 & 5 & 1 & 9 & 6 \\ 4 & 2 & 6 & 7 & 2 & 1 & 8 & 4 \\ 5 & 6 & 8 & a & b & c & 7 & 6 \end{matrix} \Rightarrow abc = ?$

A) 186 B) 196 C) 168 D) 212 E) 182

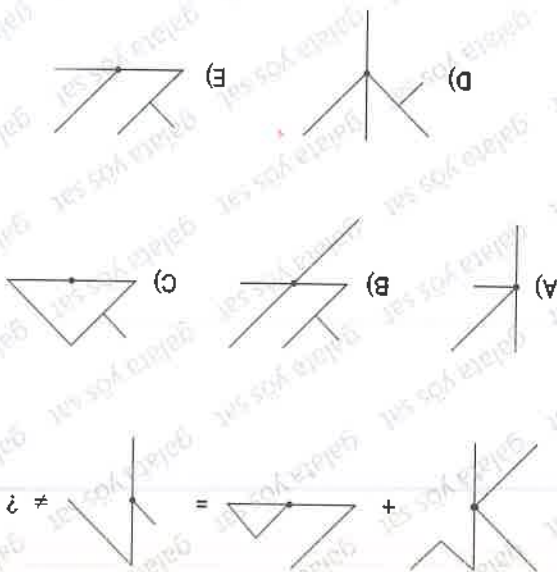

= ?



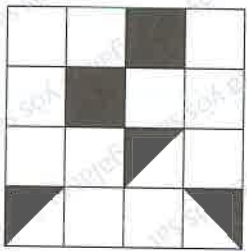
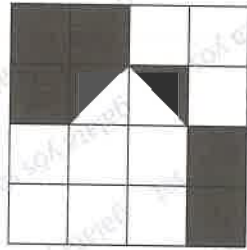
26.



29.



A) 27/32 B) 7/32 C) 17/32 D) 13/16 E) 5/8



YÖS

KTS 20



1. Aşağıdaki fonksiyonlardan kaç tanesi birebirdir?  
How many of the following functions are injective?

- I.  $f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $f(x) = 2 - 3x$
- II.  $f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $f(x) = x^2 + 2$
- III.  $f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $f(x) = \sqrt[3]{x-1}$
- IV.  $f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $f(x) = x^2 - 4$
- V.  $f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $f(x) = x^3 + 1$

- A) 1 B) 2 C) 3 D) 4 E) 5

2.  $f: (1, \infty) \rightarrow \mathbb{R}$ ,  $f(x) = 1 - 2 \log(x-1)$   
 $= f^{-1}(x) = ?$

- A)  $10^{-x} - 1$   
B)  $\sqrt{10^{-x} + 1}$   
C)  $\sqrt{10^{-x} - 1}$   
D)  $10^{x+1} + 1$   
E)  $\sqrt{10^{x+1} + 1}$

3.  $f(x) = 2x + 3$  ise  $f(x+1)$ 'in cinsinden ifadesi hangisidir?  
what is  $f(x+1)$  in terms of  $f(x-1)$ ?

- A)  $4 + f(x-1)$   
B)  $2 + f(x-1)$   
C)  $f(x-1) - 2$   
D)  $f(x-1) - 4$   
E)  $f(x-1) + 1$

4.

$$f(x) = \frac{x^2 - 4x + 5}{x^2 + 1}$$

fonksiyonun en geniş tanım kümesi nedir?  
What is the widest domain of the function?

- A)  $\mathbb{R} - \{-1, 5\}$   
B)  $\mathbb{R} - \{1, 5\}$   
C)  $\mathbb{R} - \{-5, 1\}$   
D)  $\mathbb{R} - \{-4, 1\}$   
E)  $\mathbb{R}$

5.

$$f(x) = \begin{cases} x+2, & x > 0 \\ 2-x, & x \leq 0 \end{cases}$$

$$g(x) = \begin{cases} 3x+2, & x \geq 1 \\ 2x+3, & x < 1 \end{cases}$$

$$= (f+g)(x) = ?$$

- A)  $\begin{cases} x+5, & x \leq 0 \\ 2x+5, & 0 < x < 1 \\ 4x+4, & x \geq 1 \end{cases}$   
B)  $\begin{cases} x+4, & x \leq 0 \\ 2x+5, & 0 < x < 1 \\ 4x+4, & x \geq 1 \end{cases}$   
C)  $\begin{cases} x+5, & x \leq 0 \\ 3x+5, & 0 < x < 1 \\ 4x+4, & x \geq 1 \end{cases}$   
D)  $\begin{cases} x+5, & x \leq 0 \\ 3x+5, & 0 < x < 1 \\ 4x+3, & x \geq 1 \end{cases}$   
E)  $\begin{cases} x+4, & x \leq 0 \\ 3x+5, & 0 < x < 1 \\ 4x+4, & x \geq 1 \end{cases}$

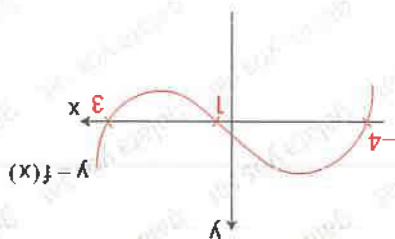
6.

$$f: \mathbb{R} - \{2\} \rightarrow \mathbb{R} - \{-1\}, f(x) = \frac{ax-c}{2x-b}$$

fonksiyonu birebir ve örten ise  $a+b$  kaçtır?  
what is  $a+b$  if the function is injective and surjective?

- A) 1 B) 2 C) 3 D) 4 E) 5

7.



$$(x^2 - 9)f(x) \leq 0 \quad = S, S = ?$$

A)  $(-8, -3]$

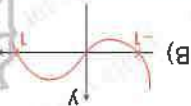
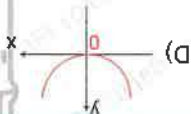
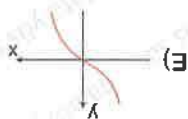
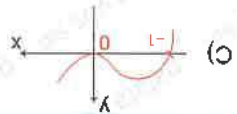
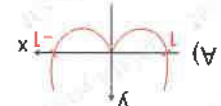
C)  $[-4, 3] \cup [1, \infty)$

D)  $(-\infty, -4] \cup [-3, 1]$

E)  $(-8, -4] \cup [-3, 1] \cup \{3\}$

8.

$f(x) = x^2 + |x|$  grafiği hangisidir? / which is the  $f(x)$  chart?



A)  $[-\frac{2}{3}, 0]$

B)  $(-\frac{2}{3}, \frac{3}{2})$

C)  $(0, \frac{3}{2})$

D)  $(-\frac{1}{2}, \frac{2}{3})$

E)  $(-1, 1)$

10.

$$f(x) = \sqrt{\log \frac{5x-1}{x+2}}$$

fonksiyonunun en geniş tanım kümesi hangisidir?  
what is the widest domain of the function?

A)  $(-\frac{3}{2}, 0)$

B)  $\mathbb{R} - (-\frac{2}{3}, \frac{3}{2})$

C)  $\mathbb{R}$

D)  $(-\frac{1}{2}, \frac{2}{3})$

E)  $\mathbb{R} - [-2, \frac{4}{3})$

11.  $f(x) = \arcsin(3x+1)$

fonksiyonunun en geniş tanım kümesi hangisidir?  
what is the widest domain of the function?

9.

Aşağıdaki fonksiyonlardan hangisi çift fonksiyondur?  
Which of the following functions are even functions?

A)  $|x| + x$

B)  $x^3$

C)  $x^2 - 2$

D)  $\cos x + \sin x$

E)  $x^2 + x$

12.

$f(x)$  tek ve  $g(x)$  çift fonksiyon olmak üzere  
 $f(x)$  odd and  $g(x)$  even functions.

$$f(-2) + g(1) = 8$$

$$f(2) + g(-1) = 6$$

$$f(-2) = ?$$

A) -2

B) -1

C) 1

D) 4

E) 5



13.  $\log_2 8 + \log_4 64 = a$   
 $= a^{\log_6 7} = ?$

- A) 5 B) 6 C) 7 D) 8 E) 9

14.  $|x| + |y| = 4$   
 fonksiyonunun belirttiği kapalı şeklin alanı kaçtır?  
 what is the area of the closed shape specified by the  
 $|x| + |y| = 4$  function?

- A) 64 B) 52 C) 40 D) 36 E) 32

15.  $1.5 + 2.7 + 3.9 + \dots + 9.21 = ?$

- A) 1410 B) 1275 C) 705 D) 570 E) 135

16.  $\sum_{k=1}^{20} k \cdot 2^{k-1} = ?$

- A)  $19 \cdot 2^{20} + 1$  B)  $20 \cdot 2^{19} + 1$  C)  $20^{20} - 1$  D)  $2^{19} + 1$  E)  $2^{20} + 1$

19.  $\log x = 3.602$

$\log y = 2.699$

$\log\left(\frac{y}{x}\right) = ?$

- A) 6.903 B) -6.903 C) 5.903 D) 3.903 E) 6.097

20.  $7^x = 21^y \Rightarrow \frac{x-y}{x+y} = ?$

- A)  $\log_8 21$  B)  $\log_8 7$  C)  $\log_8 147$  D)  $\log_7 3$  E)  $\log_7 21$

17.  $\frac{1}{2i} + \frac{2}{3} + \frac{3i}{4} + \dots + \frac{20i}{19} = ?$

- A)  $\frac{20i}{18}$  B)  $1 - \frac{20i}{1}$  C)  $\frac{20i}{19}$  D)  $2 - \frac{21i}{1}$  E)  $1 - \frac{19i}{1}$

18.  $\sum_{m=1}^2 \sum_{n=1}^3 \sum_{e=1}^4 (mne) = ?$

- A) 160 B) 180 C) 200 D) 220 E) 240

21.  $4 \cos \frac{7}{\pi} \cdot \cos \frac{7}{2\pi} \cdot \cos \frac{7}{4\pi} = ?$

- A)  $-\frac{10}{1}$  B)  $-\frac{8}{1}$  C)  $-\frac{6}{1}$  D)  $-\frac{4}{1}$  E)  $-\frac{2}{1}$

25.  $\frac{1}{1} + \frac{1}{1} + \frac{1}{1} + \frac{1}{1} + \frac{1}{1} + \frac{1}{1} + \frac{1}{1} + \frac{1}{1} = ?$

- A)  $\frac{23}{2}$  B)  $\frac{13}{6}$  C)  $\frac{35}{6}$  D)  $\frac{143}{5}$  E)  $\frac{26}{5}$

22.  $\frac{-\cos 80^\circ + i \sin 80^\circ}{-\sin 280^\circ + i \cos 280^\circ} = ?$

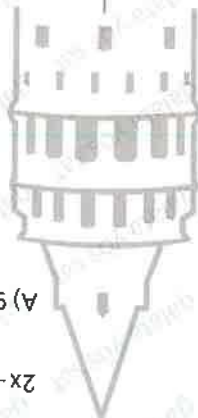
- A)  $-i$  B)  $1$  C)  $i$  D)  $1+i$  E)  $2i$

26.  $x$  ve  $y$  aralarında asal iki doğal sayıdır.  $x$  and  $y$  are coprime natural numbers.

OKEK  $(x, y) = 117$

$2x + \frac{y}{9} = 27 \Rightarrow x = ?$

- A) 9 B) 11 C) 13 D) 15 E) 17



27. A, B, C kümeleri için hangisi yanlıştır?

For sets A, B, C, which is false?

A)  $A \cap B = A \cap (B \cup C)$

B)  $A \cap B = (A \cap C) \cap (B \cap C)$

C)  $(A \cup C) \cap (B \cup C) = A \cap C$

D)  $A \cap B = (A \cup C) \cap (B \cup C)$

E)  $A \cap B = (A \cap C) \cap B$

24.  $a, b, c \in Z$

$a^b = \frac{1}{125}$

$\Rightarrow \max(a+b) = ?$

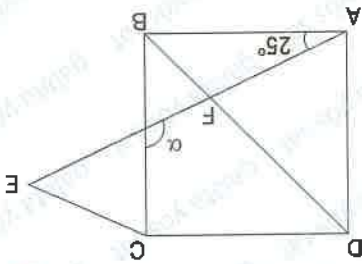
- A) 2 B) 8 C) 16 D) 124 E) 126

23.  $\sqrt{121} = 11$

$\sqrt{123454321} = 11111$

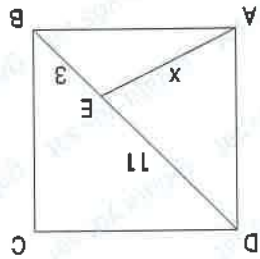
$\Rightarrow \sqrt{12345678987654321} = ?$

- A) 9876544321 B) 111111  
C) 123456789 D) 111111111  
E) 11111111111



1. ABCD; kare  
ABCD; square  
 $|BD| = |AE|$   
 $m(\widehat{BAE}) = 25^\circ$   
 $\alpha = ?$

- A) 100 B) 115 C) 120 D) 125 E) 130



2. ABCD; kare  
ABCD; square  
 $|EB| = 3$   
 $|DE| = 11$   
 $|AE| = x = ?$

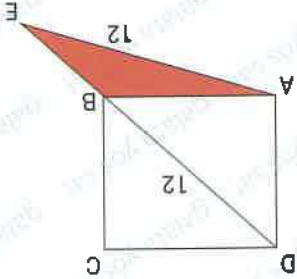
- A)  $\sqrt{61}$  B)  $\sqrt{62}$  C)  $\sqrt{65}$  D)  $\sqrt{66}$  E)  $\sqrt{67}$



3.

3. ABCD; kare  
ABCD; square  
 $|BD| = |AE| = 12$   
 $A(\widehat{ABE}) = ?$

- A) 36 B) 72 C) 144 D)  $144\sqrt{3}$  E)  $18\sqrt{3} - 18$



28.  $3x + 1 - (3 - x) = 2(3 + 2x) - 8 = S$ .  $S = ?$

- A) R B) {2} C) {3} D) R-{3} E)  $\emptyset$

29. Dört basamaklı 2a4b sayısının / 2a4b four-digit number

- 3 ile bölümünden kalan 2 / Division with 3, remainder 2  
4 ile bölümünden kalan 3 / Division with 4, remainder 3  
5 ile bölümünden kalan 2 / Division with 5, remainder 2

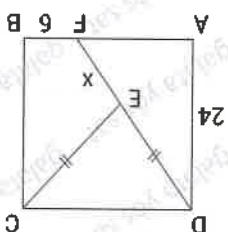
olduğuna göre, a + b en fazla kaçtır?  
what is the max a+b?

- A) 13 B) 14 C) 15 D) 16 E) 17

30.  $x \times y = 4x - 3y + 5$   
 $a \Delta b = a \cdot b - a + b$   
ve  $8 \square 5 = 5 \Delta m$   $\Rightarrow m = ?$

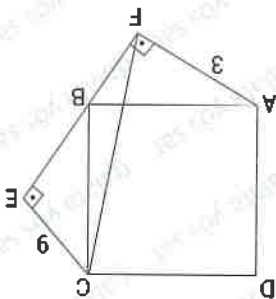
- A)  $\frac{3}{10}$  B)  $\frac{2}{15}$  C)  $\frac{2}{9}$  D)  $\frac{3}{22}$  E)  $\frac{3}{16}$

6. ABCD; kare  
 ABCD; square  
 $|DE| = |EC|$   
 $|AD| = 24$   
 $|FB| = 6$   
 $|EF| = x = ?$



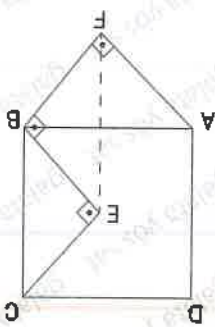
- A) 5    B) 6    C) 9    D) 10    E) 12

5. ABCD; kare  
 ABCD; square  
 $[AF] \perp [EF]$   
 $[CE] \perp [EF]$   
 $|AF| = 3$   
 $|CE| = 9$   
 $|CF| = x = ?$



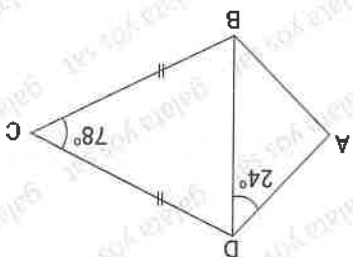
- A) 9    B) 10    C) 11    D) 12    E) 15

4. ABCD; kare  
 ABCD; square  
 $[BE] \perp [CE]$   
 $[AF] \perp [FB]$   
 $[EB] \perp [BF]$   
 $|EB| = 5$   
 $|EF| = x = ?$



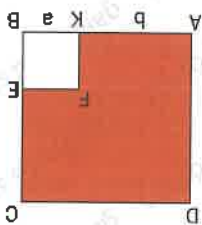
- A)  $3\sqrt{2}$     B)  $4\sqrt{2}$     C)  $5\sqrt{2}$     D)  $6\sqrt{2}$     E)  $7\sqrt{2}$

8. ABCD detroid  
 $|CD| = |BC|$   
 $m(\widehat{ADB}) = 24^\circ$   
 $m(\widehat{BCD}) = 78^\circ$   
 $m(\widehat{ABC}) = ?$



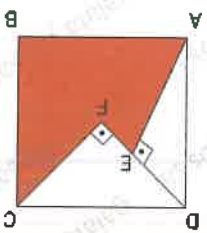
- A) 48    B) 56    C) 70    D) 75    E) 78

8. ABCD; kare / square  
 KBFE; kare / square  
 $|KB| = a$   
 $|AK| = b$   
 Taralı alan = 24  
 Shaded area = 24  
 $b(2a+b) = ?$



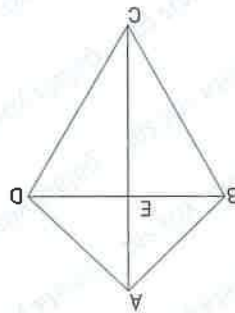
- A) 12    B) 20    C) 24    D) 28    E) 36

7. ABCD; kare  
 ABCD; square  
 $[AE] \perp [DF]$   
 $[CF] \perp [DF]$   
 $\widehat{C(ABCD)} = 20$   
 $|CF| = 3$   
 Taralı alan = ?  
 Shaded area = ?



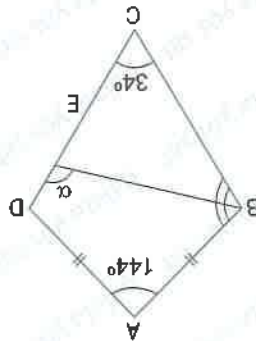
- A) 9    B) 12    C) 13    D) 14    E) 15

10. ABCD, deltoid  
 $|BC| = |CD| = 34$   
 $|BD| = 32$   
 $|AD| = 2|DE|$   
 $|AC| = ?$



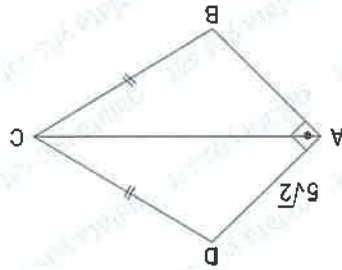
- A)  $30 - 16\sqrt{3}$  B)  $16\sqrt{3} + 30$  C)  $30\sqrt{3} + 16$   
 D)  $30\sqrt{3} - 16$  E)  $34\sqrt{3} - 16$

11. ABCD, deltoid  
 $|AB| = |AD|$   
 $m(\widehat{BAD}) = 144^\circ$   
 $m(\widehat{BCD}) = 34^\circ$   
 $m(\widehat{ABE}) = m(\widehat{EBC})$   
 $m(\widehat{BED}) = \alpha = ?$



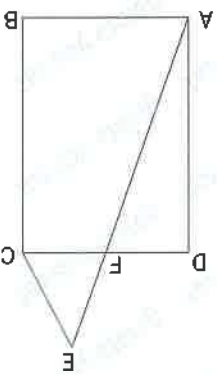
- A) 79,5 B) 80 C) 80,5 D) 84 E) 89

12. ABCD, deltoid  
 $|AD| = 5\sqrt{2}$   
 $|AC| = 15$   
 $\widehat{C}(\widehat{ABCD}) = ?$



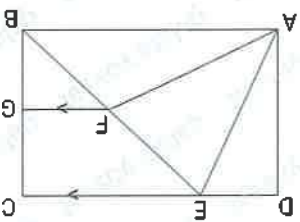
- A)  $20\sqrt{2}$  B)  $10\sqrt{2} + 5\sqrt{5}$  C)  $10\sqrt{2} + 10\sqrt{5}$   
 D)  $20\sqrt{5}$  E)  $10\sqrt{5} + 15\sqrt{5}$

13. ABCD dikdörtgen  
 ABCD rectangüler  
 $3|EF| = 2|AF|$   
 $|DF| = |FC|$   
 $A(\widehat{EFC}) = 12$   
 $A(\widehat{ABCD}) = ?$



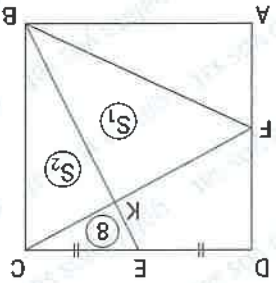
- A) 36 B) 54 C) 72 D) 74 E) 76

14. ABCD dikdörtgen  
 ABCD rectangüler  
 $m(\widehat{EAF}) = m(\widehat{FAB})$   
 $[FG] \parallel [AB]$   
 $|AB| = 3|AE|$   
 $A(\widehat{FBG}) = 18$   
 $A(\widehat{ECGF}) = ?$



- A) 14 B) 18 C) 20 D) 24 E) 36

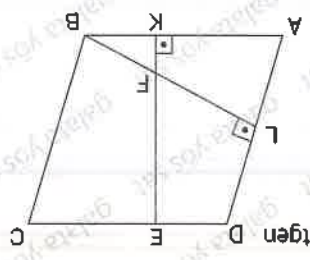
15. ABCD bir kare  
 ABCD, square  
 $|DE| = |EC|$   
 $A(\widehat{KFC}) = 8$   
 $A(\widehat{KBC}) = S_2$   
 $A(\widehat{KBF}) = S_1$   
 $S_1 - S_2 = ?$



- A) 8 B) 9 C) 10 D) 11 E) 16



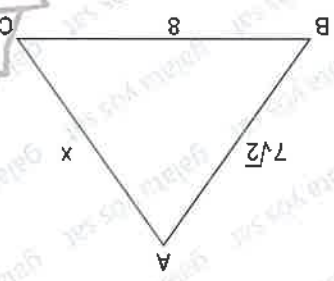
16. ABCD eşkenar dörtgen



- |AK| = 3x
- |EL| = 5 + x
- |FL| = 8
- |FB| = x
- |EK| = ?

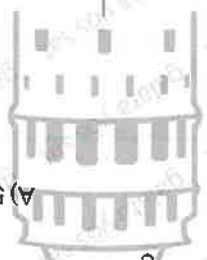
- A) 5 B) 6 C) 8 D) 9 E) 10

17.  $m(\widehat{ABC}) > 45^\circ$

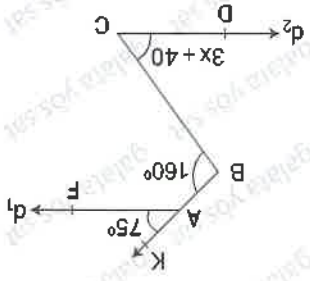


|AC| = x'in minimum  
tamsayı değeri kaçtır?  
What is the min integer  
value of |AC|=x=?

- A) 7 B) 8 C) 9 D) 10 E) 11

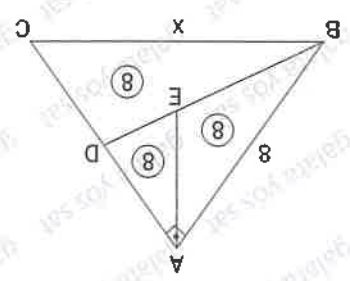


20.  $d_1 // d_2$   
 $m(\widehat{KAF}) = 75^\circ$   
 $m(\widehat{BCD}) = 3x + 40$   
 $m(\widehat{KBC}) = 160^\circ$   
 $x = ?$



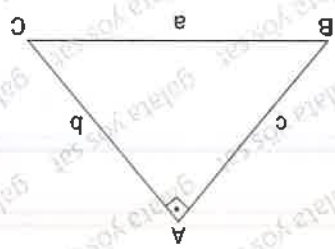
- A) 5 B) 10 C) 15 D) 20 E) 25

18.  $[BA] \perp [AC]$



- $A(\widehat{BAE}) = A(\widehat{EAD}) = A(\widehat{BDC}) = 8 \text{ cm}^2$   
 $|AB| = 8 \text{ cm}$   
 $|BC| = ? \text{ cm}$
- A) 6 B) 8 C) 10 D) 12 E) 14

19.  $[BA] \perp [AC]$



$2a^2 - b^2 - c^2 = 144$   
 $a = ?$

- A) 10 B) 12 C) 13 D) 14 E) 24



# Başarıya Götüren



Mat	Problem / Problems	Mat	Problem / Problems
Mat	Problem / Problems	Mat	Problem / Problems
Mat	Problem / Problems	Mat	Problem / Problems

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Mat	Problem / Problems	Mat	Problem / Problems

KTS-21

Mat	Logaritma Tümevarım Logarithm, Induction	Mat	Özel Tanımlı Fonksiyonlar Custom Defined Functions
Mat	Şekil İlişkileri Tablo Figure Relations, Table	Geo	Kare / Square Kare / Square
Geo	Dikdörtgen / Rectangular	Geo	Çemberin Açı / Angle on Circle Cemberin Açı / Angle on Circle
Mat	Kompleks Sayılar / Complex number	Mat	Trigonometri / Trigonometry
Mat	Şekil İlişkileri Tablo Completing Shape Relations	Geo	Çember - Alan / Environment - Area Çember - Alan / Environment - Area
Geo	Yamuk / Trapezoid	Geo	Paralelkenar II. / Parallelogram II
Mat	Modüler Aritmetik Modular Arithmetic	Mat	İl. Dereceden Denklem Il. Dereceden Denklem
Mat	Küp Sayma Tümevarımı Cube Counting and Completion	Mat	Parabol Etitirtiler Parabol Etitirtiler
Geo	Polygenler / Polygons	Geo	Çokgenler / Polygons Çokgenler / Polygons
Mat	İşlem / Operation	Mat	Kartzyen Çarpım ve Fonksiyonlar Cartesian Product and Functions
Mat	Denklem Eşleştirme / Equation Matching	Mat	Eşleştirme / Matching Eşleştirme / Matching
Geo	Açı-Side İlişimi in Triangle Uçgenin Açı Kenar İlişkisi	Geo	Uçgenin Alanı / Area of Triangles Uçgenin Alanı / Area of Triangles
Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers Sayılar / Numbers
Mat	Sayı Bağlantı/Number Relations	Mat	Tablolar / Tables Tablolar / Tables
Geo	Kenarortay / Median	Geo	Uçgenin Benzerlik Uçgenin Benzerlik
Mat	Bağıt Eşitsizlik ve Mutlak Değer Simple Inequality and Absolute Value	Mat	Çarpımara Ayırma / Factorization Çarpımara Ayırma / Factorization
Mat	Sayı Bağlantı / Number Relations	Mat	İşlem / Operations İşlem / Operations
Geo	Kenarortay / Bisector	Geo	İsoçken ve Eşkenar Uçgen İsoçken ve Eşkenar Uçgen
Mat	İşlem Üncesi ve Rasgelel Sayılar Order of operations and Rational Numbers	Mat	Birinci Dereceden Denklemler Birinci Dereceden Denklemler
Mat	Sayı Üncesi / Number Patterns	Mat	Uçgenin Alanı / Area of Triangles Uçgenin Alanı / Area of Triangles
Geo	Açılar / Angles	Geo	Uçgenin Alanı / Area of Triangles Uçgenin Alanı / Area of Triangles

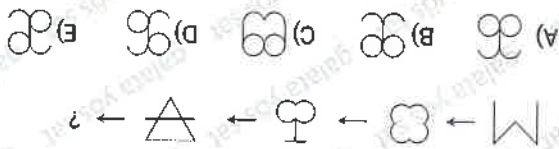
3.



Yukarıdaki şekiller sıraya dizilirse 3. şekil hangisi olur? If the above figures are lined up, what will be the third figure?

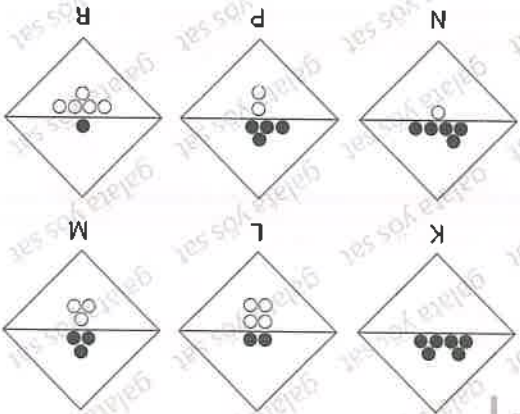
- A) T
- B) Y
- C) Z
- D) X
- E) V

4.



- A) A
- B) B
- C) C
- D) D
- E) E

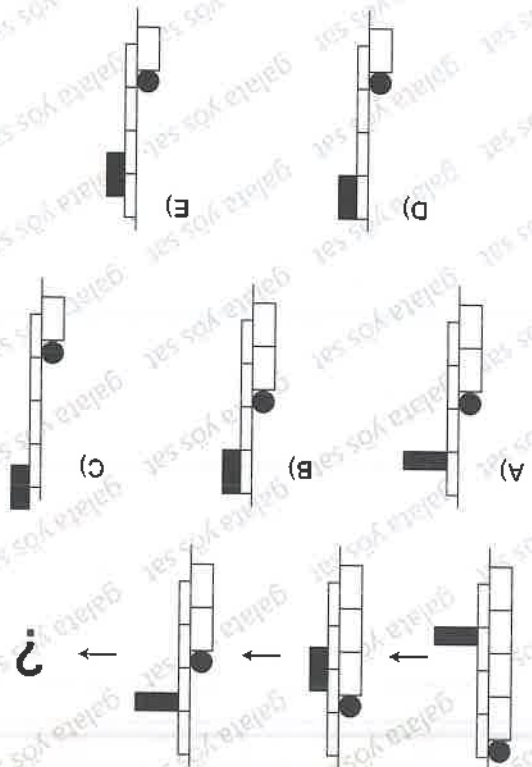
5.



Yukarıdaki şekil sıraya konulursa son şekil K olduğuna göre 4. şekil hangisidir? If the above figure is put in order, since the last figure is K, which is the 4th figure?

- A) R
- B) P
- C) U
- D) M
- E) L

1.



A)

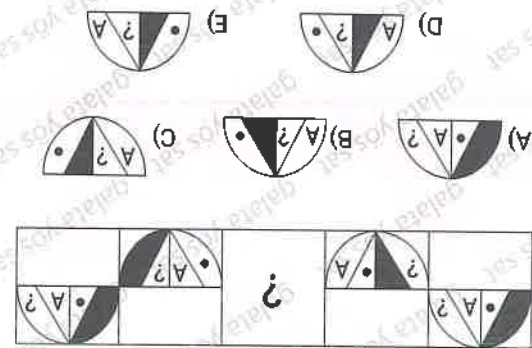
B)

C)

D)

E)

2.



A)

B)

C)

D)

E)





13. I. 

∇	⊗	□	▽	△	⊗	□	▽	△
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II. 

⊗	□	▽	△	⊗	□	▽	△
---	---	---	---	---	---	---	---

III. 

□	⊗	▽	△	□	⊗	▽	△
---	---	---	---	---	---	---	---

IV. 

□	⊗	▽	△	□	⊗	▽	△
---	---	---	---	---	---	---	---

V. 

?	?	?	?	?	?	?	?
---	---	---	---	---	---	---	---

A) 

□	⊗	▽	△	□	⊗	▽	△
---	---	---	---	---	---	---	---

B) 

□	⊗	▽	△	□	⊗	▽	△
---	---	---	---	---	---	---	---

C) 

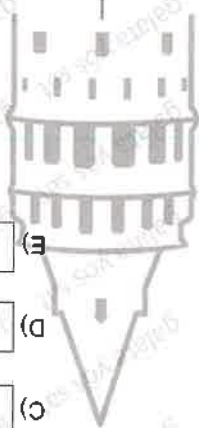
⊗	□	▽	△	⊗	□	▽	△
---	---	---	---	---	---	---	---

D) 

⊗	□	▽	△	⊗	□	▽	△
---	---	---	---	---	---	---	---

E) 

⊗	□	▽	△	⊗	□	▽	△
---	---	---	---	---	---	---	---



12. 

	⇒		
	⇒		
	⇒		
	⇒		
	⇒		
	⇒		

A)

B)

C)

D)

E)

11. 

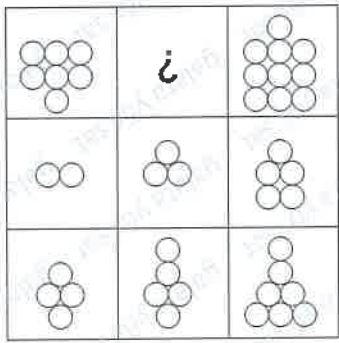

A)

B)

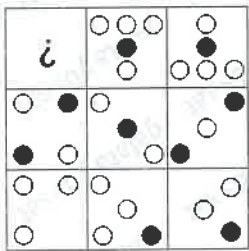
C)

D)

E)

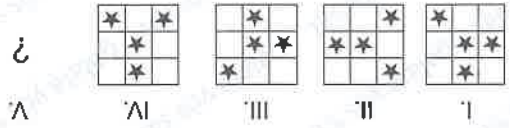


- A)
- B)
- C)
- D)
- E)



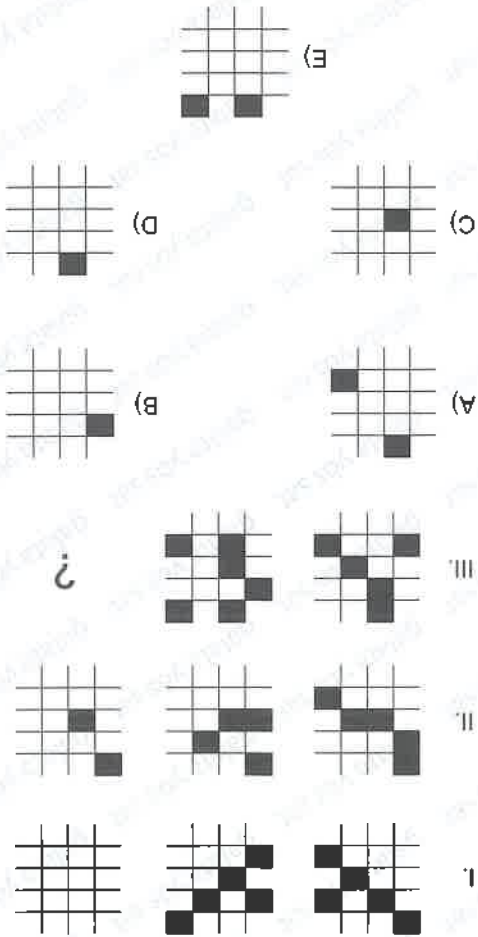
- A)
- B)
- C)
- D)
- E)

16.



- A)
- B)
- C)
- D)
- E)

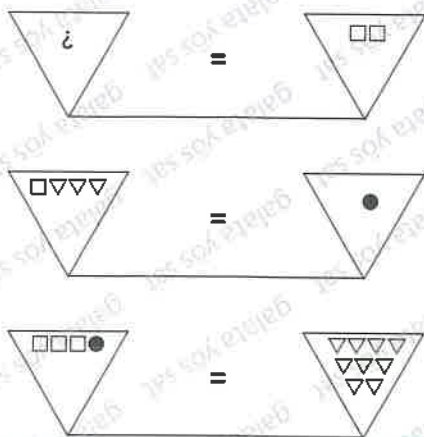
15.



- A)
- B)
- C)
- D)
- E)

14.

Soru isaretili yere kaç tane üçgen gelir ?  
 How many triangles will replace the question mark?  
 A) 1 B) 2 C) 3 D) 5 E) 6



19.

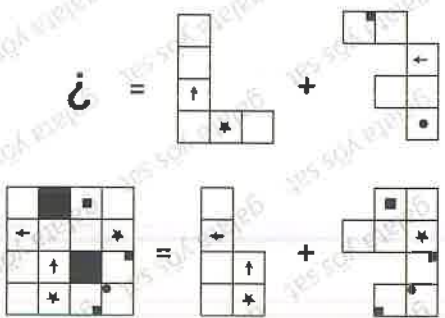
K.L=?  
 A) 5; 3 B) 4; 4 C) 4; 5 D) 6; 4 E) 5; 4

	K	5	4	3	4
3	⬡	◯	▽	⬠	□
0	⬡	⬠	◯	▽	▽
1	◯	▽	⬡	◯	⬠
6	▽	⬠	⬠	□	◯
3	⬠	⬡	▽	⬠	◯

18.

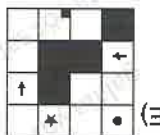


20.

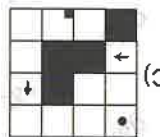


21.  $6 \circ = 4 \triangle = 8 \square = \square$   
 $\frac{\square - \triangle}{2} = \frac{\circ}{\square} = ?$

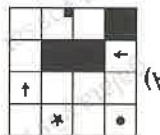
A) -3 B) 1 C) -2 D) -1 E) 2



E)



C)



A)



D)



B)



- A) + B) X C) N D)  $\diamond$  E) Z

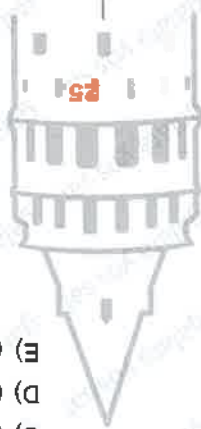
X	$\times$	—
$\sqcup$	$\square$	$\sqcup$
?	$\boxtimes$	Z

Yukandaki şekil matrisinin bir kurala uygun olabilmesi için hangi şekiller yer değiştirilmelidir?  
Which shapes must be interchanged for the above shape matrix to conform to a rule?

A) (I - K) ile (II - L)  
B) (III - K) ile (IV - M)  
C) (III - L) ile (IV - L)  
D) (III - M) ile (IV - M)  
E) (III - K) ile (IV - K)

IV.		
III.		
II.		
I.		
	M	L

24.



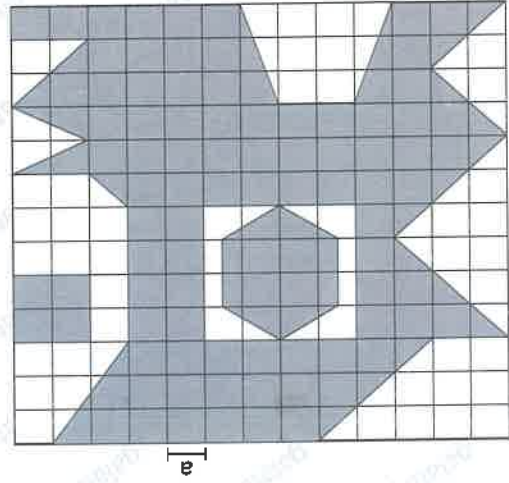
- A) 6 B) 7 C) 8 D) 9 E) 10

11	10	2	?
9	10	11	12
8	9	10	7
7	8	9	10

23.

- A) 110 B) 116 C) 128 D) 134 E) 145

Taral alan = ? a<sup>2</sup>  
Shaded Area = ? a<sup>2</sup>



22.

27.

JK	PN	PP	TK	BO
ML	JK	KB	DP	DP
KT	NR	JJ	PT	JP
TM	RP	PB	DK	DK
LM	NK	KJ	TP	?
KLT	PRK	BK	DK	PBJ

A) BJ B) DBP C) BJD D) PD E) JO

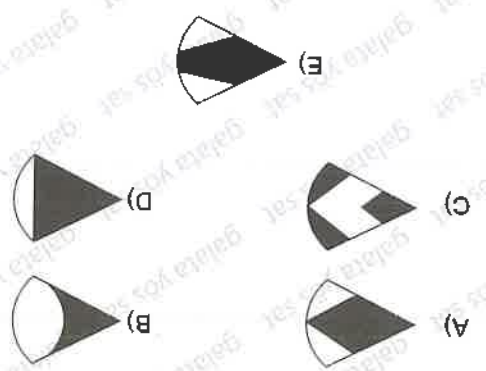


30. SAMİMİ  
YARENLIK  
GÜZELLİKTR

← 3.3  
← 5.3  
← 7.7

A) 5.3 B) 6.3 C) 6.4 D) 7.3 E) 7.4

26.



29. 533 366 432 464 528 ?

A) 532 B) 537 C) 548 D) 550 E) 556

28.

A) 1    7    9  
      2    15    8  
      8    8    8

B) 2    6    3  
      3    12    6  
      3    6    3

C) 3    0    6  
      6    12    6  
      3    6    3

D) 4    3    0  
      6    6    6  
      8    8    3

E) 5    3    0  
      6    6    6  
      3    6    3

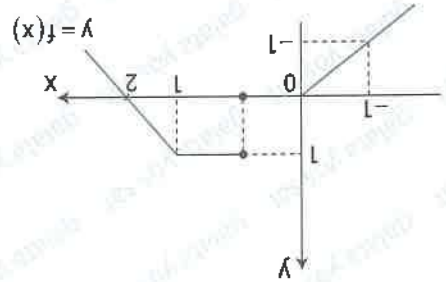
1.  $f: \mathbb{R} \rightarrow \mathbb{R}$

$$f(x) = 3x - 5 \Rightarrow \lim_{x \rightarrow -1} f(x) = ?$$

- A) 2    B) 1    C) -1    D) -2    E) -8

$$2. f(x) = \begin{cases} x^2 + 1, & x < 3 \\ 7, & x = 3 \\ 3x + 1, & x > 3 \end{cases} = \lim_{x \rightarrow 3} f(x) = ?$$

- A) 3    B) 7    C) 8    D) 10    E)  $\emptyset$



$$\lim_{x \rightarrow 2} f(x) = ?$$

- A) 2    B) 1    C) 0    D) -1    E) -2

3.

$$4. \lim_{x \rightarrow -2} (-1)^x = ?$$

- A) 2    B) 1    C) 0    D) -1    E) -2

$$5. \lim_{x \rightarrow 2} \sqrt[3]{x+6} = ?$$

- A) 2    B) -1    C) 0    D)  $\frac{2}{3}$     E) 8

$$6. \lim_{x \rightarrow 8} (\log_4 x^2) = ?$$

- A) 0    B)  $\frac{2}{1}$     C) 2    D)  $\frac{2}{3}$     E) 3

$$7. f(x) = \begin{cases} 3ax - 5, & x < -2 \\ x^2 - bx + a, & x \geq -2 \end{cases} \lim_{x \rightarrow -2} f(x) = 1 = a \cdot b = ?$$

- A) -1    B)  $-\frac{1}{2}$     C)  $\frac{2}{1}$     D) 1    E) 2

$$8. \lim_{x \rightarrow y} \frac{x+2y}{3x-y} = ?$$

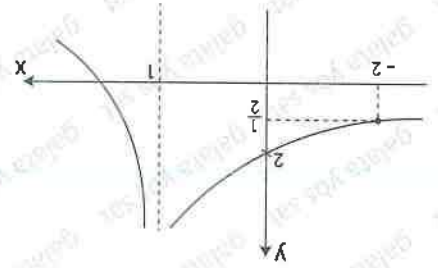
- A)  $\frac{2}{3}$     B) 1    C)  $\frac{2}{1}$     D)  $\frac{4}{1}$     E) 0

9.  $\lim_{x \rightarrow 0} \frac{x}{x-|x|} = ?$

- A)  $\frac{1}{2}$  B) 1 C)  $\frac{2}{3}$  D) 2 E)  $\emptyset$

10.  $\lim_{x \rightarrow 8} \frac{1}{x-3} = ?$

- A)  $-\infty$  B) -3 C) 0 D) 3 E)  $\infty$



Şekildeki  $f(x)$  fonksiyonunun grafiğine göre aşağıda-  
kilerden kaç tanesi doğrudur ?  
According to the graph of the function  $f(x)$  in the  
figure, how many of the following are true?

- I.  $\lim_{x \rightarrow 0} f(x) = +\infty$   
II.  $\lim_{x \rightarrow +\infty} f(x) = 0$   
III.  $\lim_{x \rightarrow +1} f(x) = +\infty$   
IV.  $\lim_{x \rightarrow -2} f(x) = \frac{1}{2}$

- A) 0 B) 1 C) 2 D) 3 E) 4

13.  $\lim_{x \rightarrow \infty} \frac{(2x+5)^{4x-1}}{(2x+3)^{4x-1}} = ?$

- A) 2 B) 4 C)  $e^2$  D)  $e^3$  E)  $e^4$

12.  $\lim_{x \rightarrow \infty} \left( 2^x + \frac{3x-4}{2x+1} + 2 \right) = ?$

- A) 0 B) 1 C) 2 D)  $\frac{3}{8}$  E)  $\frac{3}{11}$

14.  $f(x) = \begin{cases} mx+n, & x < 1 \\ 5, & x = 1 \\ x^2+n, & x > 1 \end{cases}$

$f(x)$  fonksiyonu reel sayılar kümesinde sürekli ise  $n$  kaçtır ?  
If  $f(x)$  is continuous on a set of real numbers, what is  $n$ ?

- A) -2 B) -1 C) 1 D) 2 E) 4

15.  $\lim_{x \rightarrow \infty} (\sqrt{x^2 - 4x} - x) = ?$

- A) -4 B) -2 C) 0 D) 2 E) 4



16.  $8^8$  sayısının yarısı aşağıdakilerden hangisidir ?  
What is half of the number  $8^8$  ?

- A)  $4^4$  B)  $4^8$  C)  $2^4$  D)  $8^4$  E)  $2^{23}$

17.  $\frac{1}{1} + \frac{1}{1} + \frac{3i}{4i} + \frac{1}{1} = ?$   
 $\frac{3i}{4i} + \frac{1}{1} + \frac{1}{1} + \frac{1}{1} = ?$

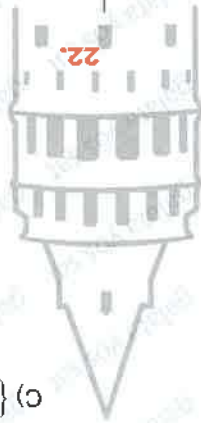
- A) 1 B)  $\frac{7}{13}$  C)  $\frac{23}{15}$  D)  $\frac{23}{37}$  E) 3

18.  $\frac{3,9}{3,9} + \frac{4,9}{4,9} = ?$   
 $\frac{2,9}{3,9} + \frac{3,9}{4,9} = ?$

- A)  $\frac{4}{3}$  B)  $\frac{41}{30}$  C)  $\frac{83}{60}$  D)  $\frac{5}{7}$  E)  $\frac{60}{87}$

19.  $\frac{3}{2} + \frac{3}{4} = ? \pmod{7}$

- A) 1 B) 2 C) 3 D) 4 E) 5



22.

21.  $x^4 + 5x^2 - 6 = 0 \Rightarrow S, S = ?$

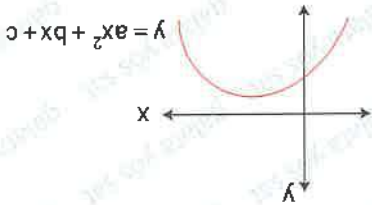
- A)  $\{\pm 1, \pm\sqrt{6}\}$  B)  $\{\pm 1, \pm\sqrt{6}\}$   
C)  $\{\pm 1, \pm\sqrt{6}\}$  D)  $\{-1, \pm\sqrt{6}\}$   
E)  $\{\pm\sqrt{6}, 1\}$

- A) 1 B) 2<sup>1</sup> C) 2<sup>5</sup> D) 2<sup>12</sup> E) 2<sup>17</sup>

20.  $a = 12, b = 4 = \frac{(a-b)^3}{(a+b)^2} = ?$

- A)  $4 \cdot a \cdot c - b^2 < 0$  B)  $a \cdot b \cdot c > 0$   
C)  $a \cdot c < 0$  D)  $a \cdot b > 0$   
E)  $b \cdot c < 0$

Sekilde grafiği verilen parabolde göre, aşağıdakilerden hangisi doğrudur ?  
According to the parabola graphed in the figure, which of the following is true?



23.  $\cos^2 \frac{\pi}{8} + \cos^2 \frac{3\pi}{8} = ?$

- A) 1 B)  $\frac{\sqrt{2}}{2}$  C)  $\sqrt{3}$  D)  $2\sqrt{3}$  E) 5

27.  $\sum_{k=1}^{10} (2k+1) = ?$

- A) 100 B) 110 C) 120 D) 130 E) 140

24.  $g(x) = x^2 - 2x$  olmak üzere

$(f \circ g)(x) \geq 4$  şartını sağlayan

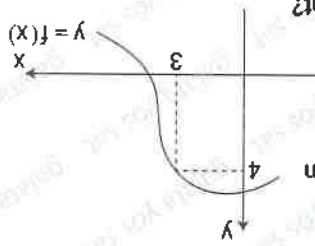
x tam sayılarının toplamı

kaçtır ?

What is the sum of the

integers x that satisfy

the  $(f \circ g)(x) \geq 4$  requirement?



28. x, y birer tam sayıdır. Buna göre  $|x| + |y| = 8$  eşitliğini

sağlayan kaç farklı  $(x,y)$  ikilisi vardır ?

x, y are integers. Accordingly, how many different pairs

$(x,y)$  are there that satisfy  $|x| + |y| = 8$  ?

- A) 12 B) 16 C) 32 D) 36 E) 40

- A) -12 B) -4 C) -1 D) 5 E) 6

25.  $8 \tan x = 3 \cos x = \sin x = ?$

- A)  $\frac{3}{1}$  B)  $\frac{1}{2}$  C) 1 D)  $\frac{2}{3}$  E)  $\frac{4}{3}$

29.  $f: (0, \infty) \rightarrow (-\infty, 1)$

$f(x) = 1 - \frac{x^2}{2} = f^{-1}(-7) + f(2) = ?$

- A)  $-\frac{2}{3}$  B)  $-\frac{1}{2}$  C)  $\frac{2}{1}$  D) 1 E)  $\frac{2}{3}$

26.  $\log_2 16 - \log_5 \frac{5}{1} + \log_2 4 = ?$

- A) 5 B) 10 C) 15 D) 20 E) 25

30.  $f: \mathbb{R} \rightarrow \mathbb{R}$

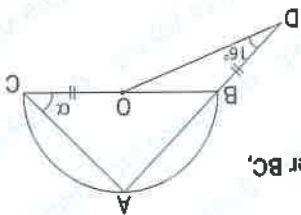
$f(x) = 2x + 1 + f(x+1)$

$f(4) = 2 = f(12) = ?$

- A) -126 B) -120 C) -110 D) -100 E) 15



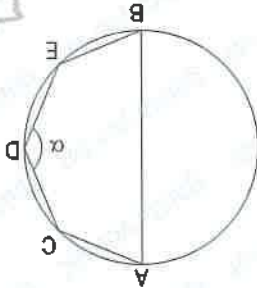
4.



BC : çaplı yarıym çemberde  
 $|BD| = |OC|$   
 $m(\widehat{ADO}) = 16^\circ$   
 $m(\widehat{ACB}) = \alpha = ?$

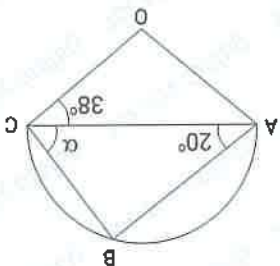
- A) 32 B) 40 C) 44 D) 48 E) 58

5.



O merkezli ABC çemberde  
 $m(\widehat{BAC}) = 20^\circ$   
 $m(\widehat{ACO}) = 38^\circ$   
 $m(\widehat{ACB}) = \alpha = ?$

- A) 30 B) 32 C) 34 D) 38 E) 40



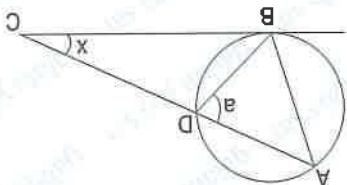
2.

AB : çaplı çemberde  
 $|AC| = |DE|$   
 $|CD| = |BE|$   
 $\alpha = ?$

- A) 120 B) 130 C) 135 D) 140 E) 160

3.

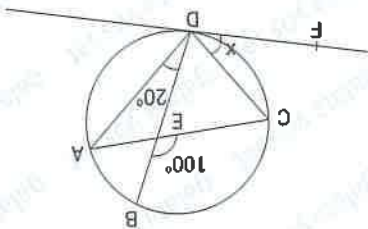
$|AB| = |BC|$   
 a'nin x cinsinden değeri nedir?  
 what is A in terms of x?



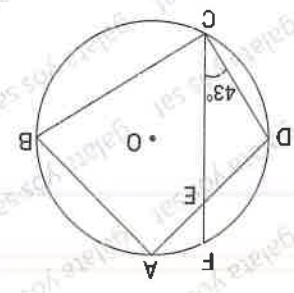
- A) x B) 2x C) 3x D) 4x E) 5x

6.

$m(\widehat{ADB}) = 20^\circ$   
 $m(\widehat{BEC}) = 100^\circ$   
 $m(\widehat{CDF}) = x = ?$

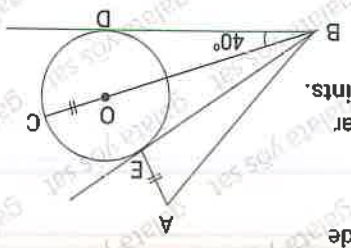


- A) 40 B) 50 C) 60 D) 70 E) 80



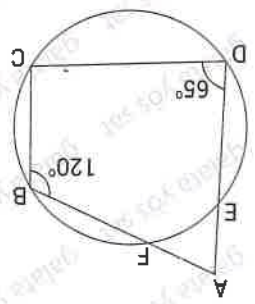
7. O merkez çember  
O center circle  
 $|DE| = |DC|$   
 $m(\widehat{DCF}) = 43^\circ$   
 $m(\widehat{ABC}) = ?$

- A) 86 B) 90 C) 94 D) 96 E) 100



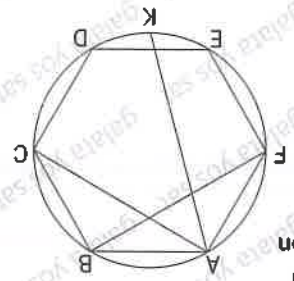
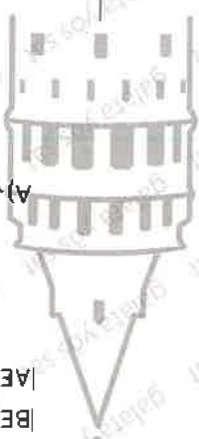
10. O merkezli çemberde  
O center  
 $|AE| = |OC|$   
E ve D teğet noktalar.  
E and D tangent points.  
 $m(\widehat{BC}) = 40^\circ$   
 $m(\widehat{EC}) = ?$

- A) 100 B) 120 C) 130 D) 140 E) 150



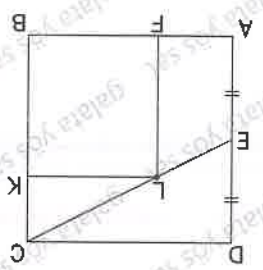
8.  $[AD] \parallel [BC]$   
 $m(\widehat{ABC}) = 120^\circ$   
 $m(\widehat{ADC}) = 65^\circ$   
 $m(\widehat{BCD}) = ?$

- A) 120 B) 130 C) 160 D) 170 E) 190



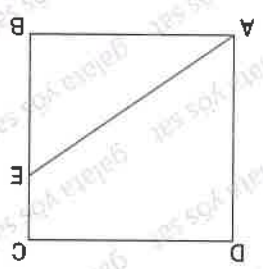
9. ABCDEF düzgen altıgen  
 $m(\widehat{CDK}) + m(\widehat{EK}) = ?$

- A) 100 B) 120 C) 140 D) 200 E) 240



12. ABCD kare/square  
FBKL kare/square  
 $|DE| = |EA|$   
 $|LK| = 8$   
 $A(ABCD) = ?$

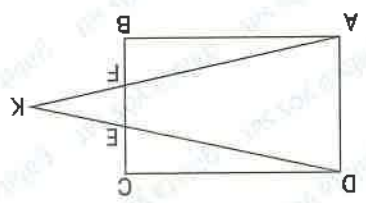
- A) 144 B) 120 C) 100 D) 96 E) 81



11. ABCD kare  
 $|BE| = 4 |EC| = 4$   
 $|AE| = ?$

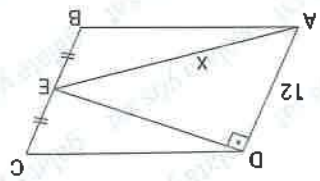
- A)  $\sqrt{40}$  B)  $\sqrt{41}$  C)  $\sqrt{42}$  D)  $\sqrt{43}$  E)  $2\sqrt{3}$

13. ABCD dikdörtgen  
 $\frac{A(AFD)}{3} = \frac{A(ABCD)}{5}$   
 $|EK| = \frac{2}{3}$   
 $|DE| = ?$



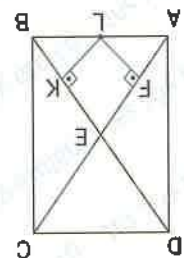
- A) 4 B) 5 C) 6 D) 9 E) 12

16. ABCD bir eşkenar dörtgen  
 $|BE| = |EC|$   
 $|AD| \perp |DE|$   
 $|AD| = 12$   
 $|AE| = x = ?$



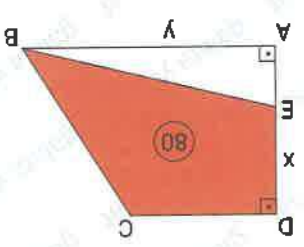
- A)  $6\sqrt{7}$  B)  $6\sqrt{6}$  C)  $6\sqrt{5}$  D)  $6\sqrt{3}$  E)  $6\sqrt{2}$

14. ABCD dikdörtgen  
 $|AE| = 8$   
 $|FL| = a$   
 $|KL| = b$   
 $A(ABCD) = 64$   
 $a + b = ?$



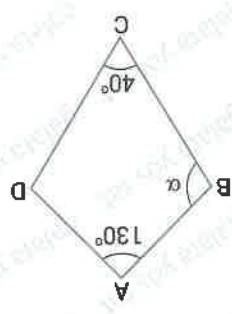
- A) 4 B) 5 C) 6 D) 8 E) 9

17. ABCD dik yamuk  
 DEBC deltoid  
 $|DE| = |DC| = x$   
 $|AB| = y$   
 $A(CDEB) = 80$   
 $x \cdot y = ?$



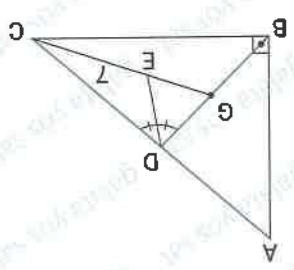
- A) 20 B) 40 C) 80 D) 100 E) 160

15. ABCD deltoid  
 $m(\widehat{BAD}) = 130^\circ$   
 $m(\widehat{BCD}) = 40^\circ$   
 $m(\widehat{ABC}) = \alpha$



- A) 80 B) 85 C) 90 D) 95 E) 100

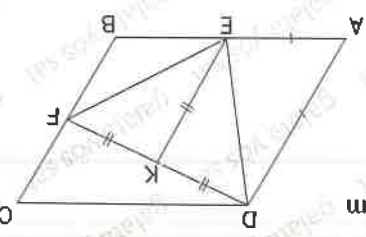
18.  $[AB] \perp [BC]$   
 G : ağırlık merkezi  
 [DE] : ağırlık tay  
 [DE] : bisektör  
 $|EC| = 7$   
 $|GE| = ?$



- A) 2 B)  $\frac{2}{7}$  C)  $\frac{3}{7}$  D) 4 E)  $\frac{9}{2}$



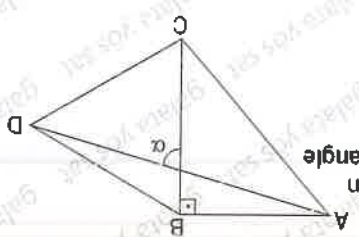
19. ABCD parallelenar  
 ABCD parallelogram



- $|AD| = |AE|$
- $|DK| = |KF| = |EK|$
- $|AD| = 8$
- $|CF| = 3$
- $\angle(ABCD) = ?$

- A) 21
- B) 28
- C) 40
- D) 42
- E) 44

20.  $[AB] \perp [BC]$



- $[AB] \perp [BC]$
- BCD eşkenar üçgen
- $|AB| = |BC|$
- $\alpha = ?$

- A) 45
- B) 60
- C) 70
- D) 75
- E) 80



# Başarıya Götüren Yol

Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem / Problem	Mat	Problem / Problem

Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem / Problem	Mat	Problem / Problem

Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem / Problem	Mat	Problem / Problem

Mat	Logaritma Tutarlarım Logarithm, Induction	Mat	Özel Tanımlı Fonksiyonlar Custom Defined Functions
IQ	Şekli Hakkında Tablo Figure Relations, Table	IQ	Şekli Hakkında Tablo Figure Relations, Table
Geo	Dikdörtgen / Rectangular Figure Relations, Table	Geo	Kare / Square Figure Relations, Table

Mat	Karmaşık Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry
IQ	Sabit Hükümler Tamamlama Completing Shape Relations	IQ	KLM
Geo	Yanuk / Trapezoid Completing Shape Relations	Geo	Eşkenar Dörtgen / Rhombus

Mat	Modüler Aritmetik Modular Arithmetic	Mat	Polinom / Polynomial
IQ	Küp Sayma Tamamlama Cube Counting and Completion	IQ	Çizimler / Graphics
Geo	Çokgenler / Polygons Completion	Geo	Dörtgen / Quadrilateral

Mat	İşlem / Operation	Mat	Karşılıklı Çarpım ve Fonksiyonlar Cartesian Product and Functions
IQ	Denklemler Eşleştirmesi / Equation Matching	IQ	Eşleştirmesi / Matching
Geo	Üçgenin Açılı Kenar Başlangıç Angle-Side Relation in Triangle	Geo	Üçgenin Alanı / Area of Triangles

Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers
IQ	Sayı Başlangıçları/Number Relations	IQ	Tablolar / Tables
Geo	Kenarortay / Median	Geo	Üçgenin Benzerlik Similarity in Triangles

Mat	Basit Eşitsizlik ve Mutlak Değer Simple Inequality and Absolute Value	Mat	Çarpma ve Ayırma / Factorization
IQ	Sayı Başlangıçları / Number Relations	IQ	İşlemler / Operations
Geo	Kenarortay / Bisector	Geo	Üçgenler ve Eşkenar Üçgen Isosceles and Equilateral Triangle

Mat	İşlem Döngesi ve Rasyonel Sayılar Order of operations and Rational Numbers	Mat	Bitmiş Dereceden Denklemler First-Degree Equations
IQ	Şifreler / Passwords	IQ	Sayı Örüntüleri / Number patterns
Geo	Açılar / Angles	Geo	Üçgenin Açılar / Angles in Triangles

KTS-22

**2**

I   II   III   IV   ?

(A) (B) (C) (D) (E)

(A) (B) (C) (D) (E)

(A) (B) (C) (D) (E)

**3**

I   II   III   IV   ?

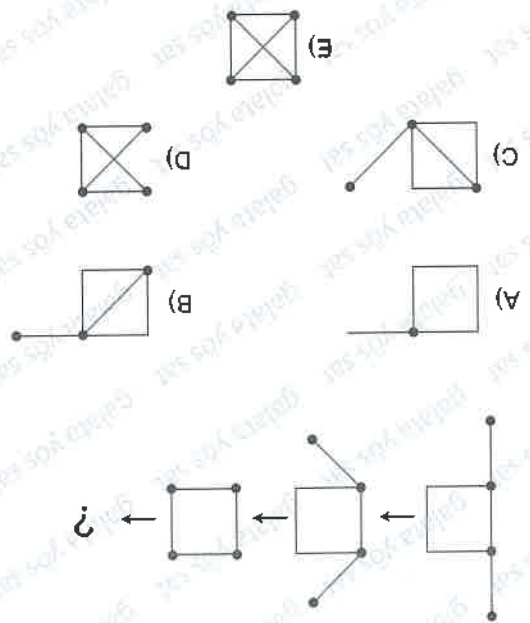
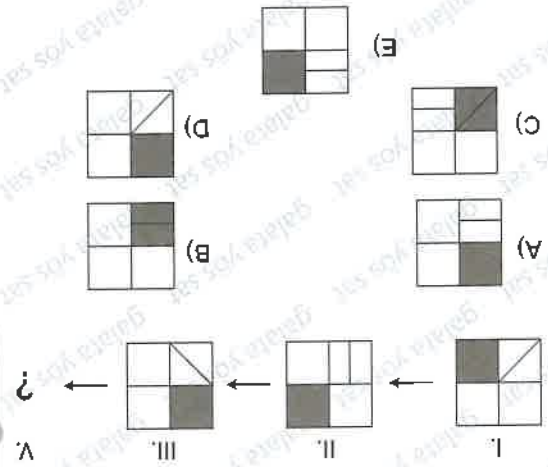
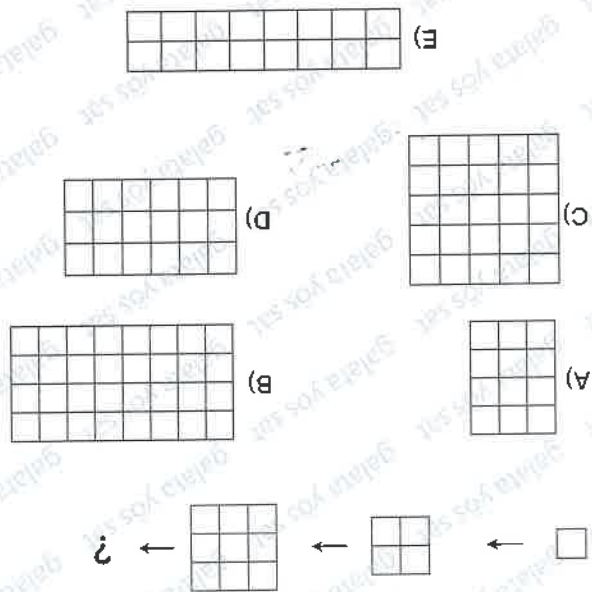
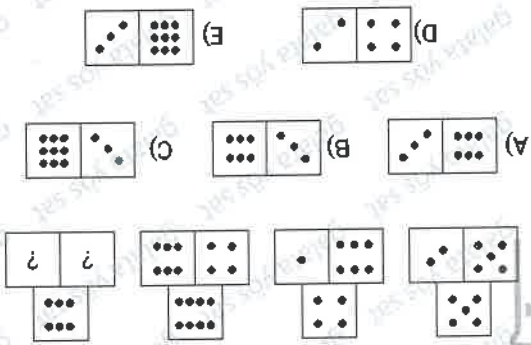
(A) (B) (C) (D) (E)

(A) (B) (C) (D) (E)

(A) (B) (C) (D) (E)

(A) (B) (C) (D) (E)









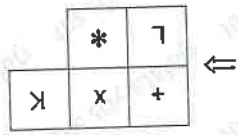




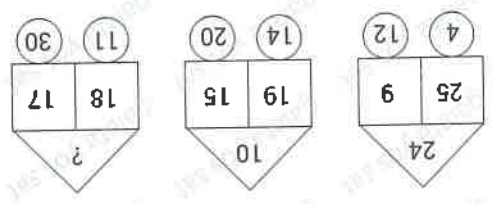
- A)  $\frac{*}{L}$
- B)  $\frac{*}{+}$
- C)  $\frac{\times}{\times}$
- D)  $\frac{\times}{*}$
- E)  $\frac{\odot}{+}$

*	⊙	+	×	x
⊙	×	x	x	+
×	*	x	+	⊙
+	x	×	⊙	*
x	-	⊙	*	×

23.



- A) 22
- B) 21
- C) 20
- D) 19
- E) 18



22.

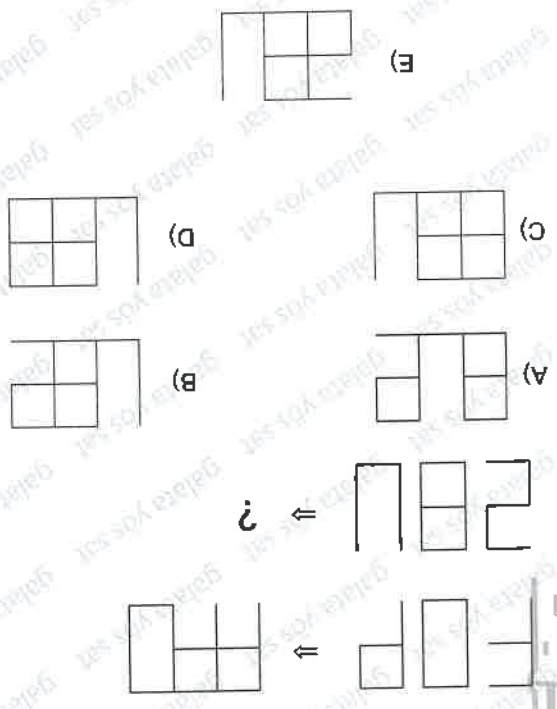
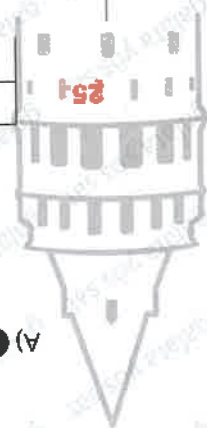
- A) 95
- B) 96
- C) 165
- D) 120
- E) 85

$\Rightarrow C - A + B = ?$

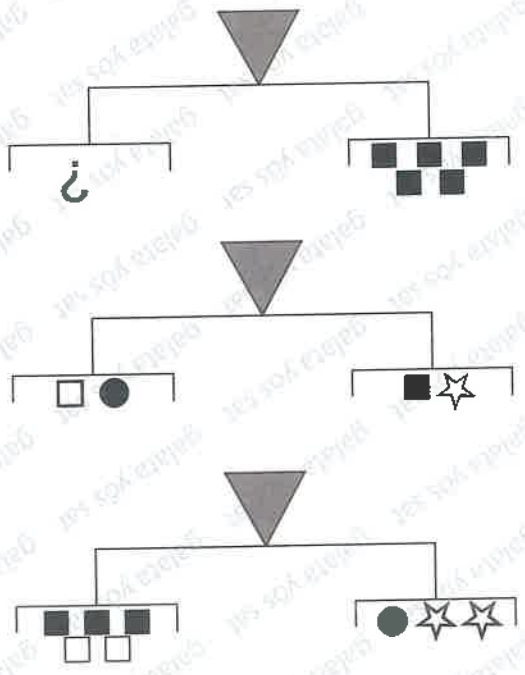
- I. 4 5 9 18 A 59
- II. 1 2 3 5 B 13
- III. 2 5 14 41 C 365

21.

24.



- A) ● ●
- B) □ ☆
- C) ● ● ● ●
- D) ● ☆ ☆ ☆
- E) ☆ ☆ ●



26.



× □ ○ →

+ □ ◇ →

?



A)



B)



C)



D)



E)

27.

k+l			
	l	k	
k			l

⇒

q			s
	3	4	
p			r

$$\frac{p+r}{q-s} = ?$$

- A) -29 B) -28 C) -27 D) -26 E) -25

28. 29. ve 30. sorular tabloya göre cevaplandırılacaktır. Questions 28 and 29 and 30 will be answered according to the table.

Aşağıdaki tabloda bir malın yıllara göre birim alış ve birim satış fiyatları verilmiştir. The table below shows the unit purchase and sale prices of a good over the years.

Yıl	Birim Alış fiyatı Unit Purchase price	Birim Satış fiyatı Unit Sale price
2016	6.000	8.000
2017	7.000	10.000
2018	8.000	11.500
2019	9.000	10.200
2020	10.000	11.600

Buna göre, 2016 yılında kaç birim mal satılmıştır? Accordingly, how many units of goods were sold in 2016?

- A) 3200 B) 3500 C) 4200 D) 4500 E) 5000

2016 yılında satılan mallardan elde edilen toplam parayı 2017 yılında 4000 birim mal almıştır. 4000 units of goods were purchased in 2017 with the total money obtained from goods sold in 2016.

Özellik  
Feature



29. 2020 yılında, alış fiyatı üzerinden 7 milyon TL(7.000.000) kar elde edilebilmesi için kaç birim mal satılmalıdır ?  
In 2020, how many units of goods should be sold in order to make a profit of 7 million TL (7,000,000) over the purchase price ?  
A) 3750 B) 4125 C) 4275 D) 4375 E) 4575

30. Alış fiyatı üzerinden en yüksek kar oranı hangi yılda yapılmıştır ?  
What year is the highest rate of profit over the Bid/Purchase Price?

A) 2016 B) 2017 C) 2018 D) 2010 E) 2020

4.  $f(x) = \frac{x^2 + 2x - 1}{x^2 + 2x + 1} = f'(1) = ?$

- A)  $\frac{1}{4}$  B)  $\frac{1}{2}$  C) 0 D) 1 E) 2

5.  $f(x) = x \cdot \sqrt[3]{x} = f'(1) = ?$

- A)  $\frac{12}{5}$  B)  $\frac{8}{3}$  C)  $\frac{24}{5}$  D)  $\frac{24}{7}$  E)  $\frac{12}{7}$

1.  $f(x) = x^2 + 11x$   
 $\Rightarrow \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h} = ?$

- A)  $2x + 11$  B)  $2x$  C)  $2x + 1$  D)  $x + 11$  E)  $x + 10$

6.  $f(x) = \begin{cases} 3x^2 - 2, & x < 2 \\ x^3 + 2, & x \geq 2 \end{cases}$

- A) 4 B) 6 C) 0 D) 12 E)  $\emptyset$

$= f'(1) = ?$

10.  $f(5x-4) = \tan\left(\frac{\pi}{4} - x\right) \Rightarrow f'(-4) = ?$

- A)  $\frac{5}{2}$  B)  $\frac{5}{3}$  C)  $-\frac{3}{1}$  D)  $\frac{3}{1}$  E)  $-\frac{5}{2}$

7.  $f(x) = 2x^2 + 3\cos x + \tan x$

$\Rightarrow f'(0) = ?$

- A) 1 B) 4 C) 5 D) 3 E) 0

8.  $y = 2^{\sin x} = y' = ?$

- A)  $2^{\cos x} \ln 2$  B)  $2^{\sin x} \ln 2$  C)  $\cos x \cdot 2^{\sin x} \cdot \ln 2$  D)  $\cos x \cdot \ln 2$  E)  $2^{\sin x} \cdot \cos x$

9.  $y = \cos(\ln x) \Rightarrow y' = ?$

- A)  $-\sin(\ln x)$  B)  $\sin(\ln x)$  C)  $-\sin(\ln x) \cdot \frac{1}{x}$  D)  $\frac{1}{\sin(\ln x)} \cdot \frac{1}{x}$  E)  $-\frac{1}{2 \cos(\ln x)} \cdot \frac{1}{x}$

13.  $y = \ln\left(\frac{1 - \sin^2 x}{\sin 2x}\right) + \ln\left(\frac{\tan x}{\cos x}\right) \Rightarrow \frac{dy}{dx} \Big|_{x=\frac{\pi}{3}} = ?$

- A)  $4\sqrt{3}$  B)  $7\sqrt{3}$  C)  $2\sqrt{3}$  D)  $4\sqrt{3}$  E)  $\sqrt{3}$



12.  $y = x^3 \cdot e^{x^2} = e^{-x^2} \cdot \frac{dy}{dx} \Big|_{x=2} = ?$

- A) 42 B) 44 C) 46 D) 48 E) 50

11. P(x) polinom fonksiyondur. P(x) + P'(x) = x<sup>2</sup> - 4x - 3 = P(2) = ?

- A) -5 B) -4 C) -3 D) -2 E) -1

14.  $f(x) = \log_8(x-3) = g(x) = \frac{dx}{d^{-1}(x)} = ?$

- A)  $3^x \ln 3$  B)  $3^x \log 3$  C)  $3^x \log_8 10$   
 D)  $\frac{\ln 3}{3^x}$  E)  $3^x + 3$

15.  $x > \frac{1}{4}$ ,  $f(x) = \ln(4x-1) = (f^{-1})^{-1}(1) = ?$

- A)  $2e$  B)  $e$  C)  $\frac{4}{e}$  D)  $\frac{6}{e}$  E)  $\frac{8}{e}$

16.  $f(x) = \ln x \Rightarrow f^{(10)}(x) = ?$

- A)  $\frac{x^{10}}{10!}$  B)  $\frac{x^9}{10!}$  C)  $-\frac{x^9}{9!}$  D)  $-\frac{x^9}{10!}$  E)  $\frac{x^{10}}{9!}$

17.  $\frac{(10i)^2 - (9i)^2}{(10i)^2 + (9i)^2} = ?$

- A)  $\frac{11}{9}$  B)  $\frac{101}{19}$  C)  $\frac{181}{19}$  D)  $\frac{121}{81}$  E)  $\frac{101}{99}$

20.  $\frac{2m}{3n}$  sayısı  $\frac{3m}{2n}$  sayısının kaç katıdır ?

- A)  $\frac{n}{m}$  B)  $\frac{n^2}{m^2}$  C)  $\frac{9}{4}$  D)  $\frac{n^2}{m^2}$  E)  $\frac{9m^2}{4n^2}$

How many times the number  $\frac{3m}{2n}$  is the number  $\frac{2m}{3n}$  ?

21.  $x, y \in \mathbb{R}$

$3 < x \leq 10$   $2 < y < 5$   $\frac{x \cdot y}{x+y} = ?$

- A)  $\left[\frac{10}{3}, \frac{6}{5}\right]$  B)  $\left(\frac{10}{3}, \frac{6}{5}\right)$  C)  $\left(\frac{3}{10}, \frac{6}{5}\right)$   
 D)  $\left[\frac{1}{15}, \frac{6}{5}\right]$  E)  $\left(\frac{1}{15}, \frac{6}{5}\right)$

19. 13! sayısı aşağıdakilerden hangisi ile tam olarak bölünmez ?

- A) 9 B) 11 C) 13 D) 26 E) 34  
 13! can not be divided exactly by which of the following?

18. Üç basamaklı en küçük asal sayı ile iki basamaklı en büyük çift tam sayının toplamı kaçtır ?

- A) 197 B) 198 C) 199 D) 200 E) 204  
 What is the sum of the smallest three-digit prime number and the highest two-digit even integer?

22.  $\frac{4\sqrt{3}}{2+\sqrt{3}+\sqrt{7}}$

A)  $\frac{7}{4}$

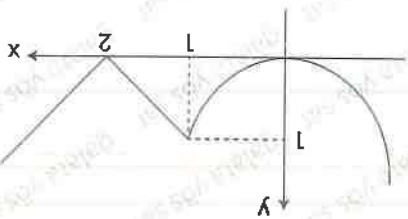
C)  $\frac{3}{4(2-\sqrt{7})}$

D)  $2\sqrt{3}+4+\frac{4\sqrt{21}}{7}$

E)  $2+\sqrt{3}+\sqrt{7}$

B)  $2+\sqrt{3}-\sqrt{7}$

25.



Sekilde verilen grafin denklemini hangisidir ?  
What is the equation of the graph given in the figure?

A)  $y = \begin{cases} x^2, & x < 1 \\ \sin\left(\frac{\pi}{2}x\right), & x = 1 \\ |x|, & x > 1 \end{cases}$

B)  $y = x^2 - |x^2 - x + 2|$

C)  $y = x^2 - |x - 2|$

D)  $y = \begin{cases} x^2, & x < 1 \\ 1, & x = 1 \\ |x - 2|, & x > 1 \end{cases}$

E)  $y = \begin{cases} x^2, & x \leq 1 \\ |x + 2|, & x > 1 \end{cases}$

23. Karmaşık düzlemde  $z = 3 - i$  olduğuna göre  $|z^{-1}|$  kaçtır ?  
If  $z = 3 - i$  in the complex plane, what is  $|z^{-1}|$  ?

A)  $\frac{\sqrt{10}}{10}$

B)  $\frac{\sqrt{10}}{20}$

D)  $\frac{\sqrt{15}}{30}$

C)  $\frac{\sqrt{15}}{20}$

E)  $\frac{\sqrt{10}}{50}$

26.  $\lim_{x \rightarrow -1} \frac{(x^2 - x)^4 \cdot (x - 1)}{(x^2 - 1)^6} = ?$

A)  $\frac{32}{1}$

B)  $\frac{20}{1}$

D)  $\frac{8}{1}$

E)  $\frac{4}{1}$

C)  $\frac{16}{1}$

24.  $\lim_{x \rightarrow 0} \frac{3x - \sin 2x}{2x - \sin x} = ?$

A) 0

B) 1

C)  $\frac{2}{3}$

D) 2

E)  $\frac{5}{2}$

27.  $\lim_{x \rightarrow \infty} \frac{\sqrt{4x^2 + 8x + 1} - \sqrt{x^2 - 6x + 4}}{x + \sqrt{x^2 + 6x}} = ?$

A) 0

B)  $\frac{1}{2}$

D)  $\frac{2}{3}$

C)  $\frac{3}{2}$

E) 2

28.  $a, b \in \mathbb{R}$

$$\lim_{x \rightarrow +\infty} (3x^2 - x + ax) = b \Rightarrow a + b = ?$$

- A)  $-\frac{4}{1}$  B)  $-\frac{4}{3}$  C)  $-\frac{4}{5}$  D)  $-\frac{4}{7}$  E)  $-\frac{4}{11}$

29.  $\lim_{x \rightarrow -1} \frac{1 + \sqrt[3]{x}}{1 + \sqrt[5]{x}} = ?$

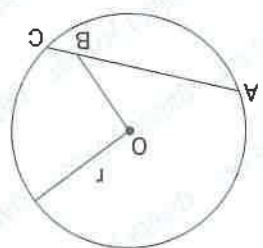
- A)  $\frac{2}{3}$  B)  $\frac{3}{2}$  C)  $\frac{4}{3}$  D)  $\frac{3}{5}$  E)  $\frac{7}{5}$

30.  $\lim_{x \rightarrow 0} \frac{\arcsin x}{x} = ?$

- A) 0 B)  $\frac{1}{2}$  C)  $\frac{1}{3}$  D) 1 E)  $\infty$

1.

O merkezli çember



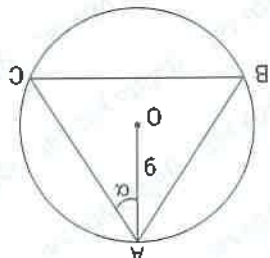
- A)  $\sqrt{73}$  B)  $6\sqrt{2}$  C)  $\sqrt{27}$  D)  $8\sqrt{2}$  E)  $8\sqrt{3}$

$r = ?$

- $|AB| = 14$   
 $|BC| = 2$   
 $|AC| = 3\sqrt{5}$

2.

O merkezli çember



- A) 45 B) 30 C) 60 D) 75 E) 90

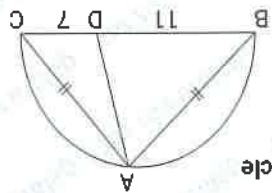
$\alpha = ?$

- O center  
 $|OA| = 9$   
 $|AC| = 9\sqrt{3}$

3.

[BC]: yarım çemberin çapı

[BC]: diameter of the semicircle

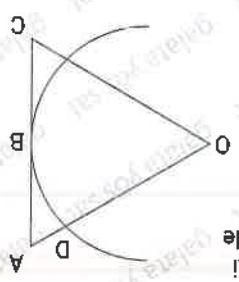


- $|AB| = |AC|$   
 $|DC| = 7$   
 $|BD| = 11$   
 $|AD| = ?$

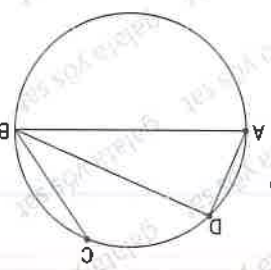
- A) 8 B) 9 C)  $\sqrt{82}$  D)  $\sqrt{83}$  E)  $\sqrt{85}$



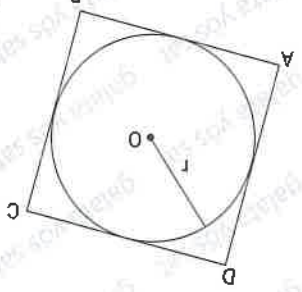
4. O: gembirin merkezi  
 O: center of the circle  
 B: teğet noktası  
 B: tangent point  
 $|AD| = 2$   
 $|AB| = 4$   
 $r = ?$   
 A) 2 B) 3 C) 4 D) 5 E) 6



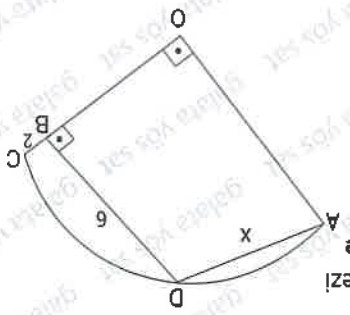
7. [AB] çap  
 [AB] diameter  
 $m(\widehat{AD}) = m(\widehat{DC}) = m(\widehat{BC})$   
 $\frac{|BC|}{|BD|} = ?$   
 A)  $\frac{\sqrt{3}}{1}$  B)  $\sqrt{3}$  C) 1 D)  $\frac{1}{2}$  E)  $\frac{1}{3}$



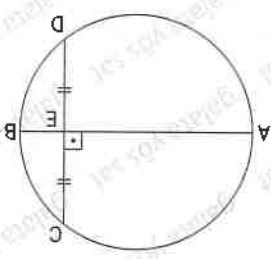
5. ABCD kare  
 ABCD square  
 O merkez  
 O center  
 $A(ABCD) = 100$   
 $r = ?$   
 A) 5 B) 6 C) 7 D) 8 E) 10



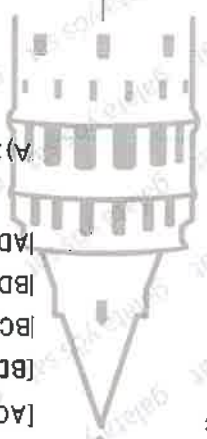
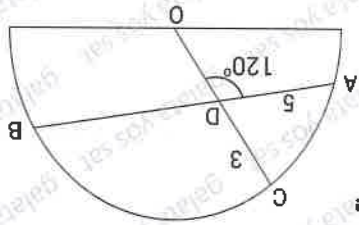
8. O geyrek gembirin merkezi  
 O Center of quarter circle  
 $\angle AOB \perp \angle COB$   
 $\angle BDC \perp \angle OCB$   
 $|BC| = 2$   
 $|BD| = 6$   
 $|AD| = x$   
 A)  $2\sqrt{5}$  B)  $3\sqrt{5}$  C)  $4\sqrt{5}$  D)  $5\sqrt{5}$  E)  $8\sqrt{5}$



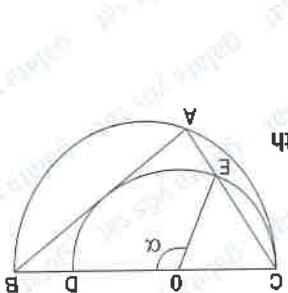
6. [AB] çap  
 [AB] diameter  
 $|CE| = |ED| = 2\sqrt{3}$   
 $|EB| = 3$   
 $|AB| = ?$   
 A) 4 B) 6 C) 7 D) 8 E) 9



9. O merkezi yarım çember  
 O center of Semicircle  
 $m(\widehat{ADO}) = 120^\circ$   
 $|CD| = 3$   
 $|AD| = 5$   
 $|DB| = ?$   
 A) 13 B) 16 C) 19 D) 21 E) 23

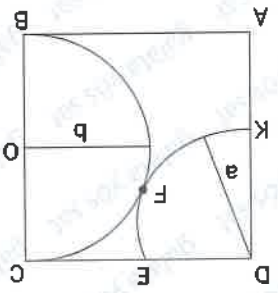






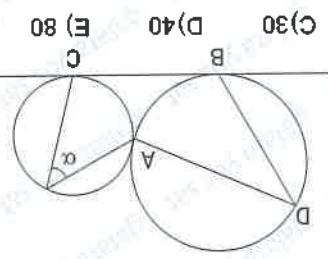
13. [BC] : çap  
[BC] : diameter  
O : [CD] çaplı yarım çemberin merkezi  
O : center of the semicircle with the Diameter [CD],  
 $m(\widehat{AB}) = 140^\circ$   
 $\alpha = ?$

- A) 60 B) 70 C) 80 D) 120 E) 140



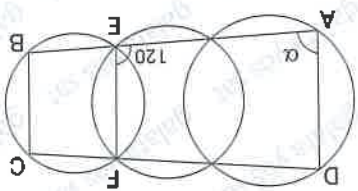
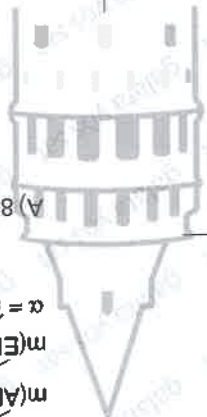
10. ABCD kare  
ABCD square  
O Yarım çemberin merkezi  
O Center of the semicircle  
D Çeyrek çemberin merkezi  
D Center of the quarter circle  
F Teğet noktası  
F Tangent point  
 $\frac{a}{b} = ?$

- A)  $\sqrt{5}$  B)  $\sqrt{5} + 1$  C)  $\sqrt{5} - 1$  D)  $2\sqrt{5}$  E)  $2\sqrt{5} - 2$



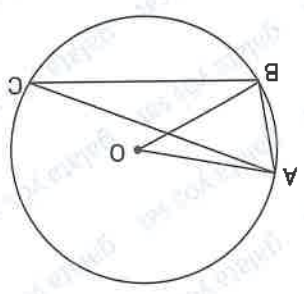
11. A, B, C : teğet noktaları  
 $m(\widehat{BDA}) = 80^\circ$   
 $\alpha = ?$

- A) 10 B) 20 C) 30 D) 40 E) 80



15.  $m(\widehat{AEF}) = 120^\circ$   
 $\alpha = ?$

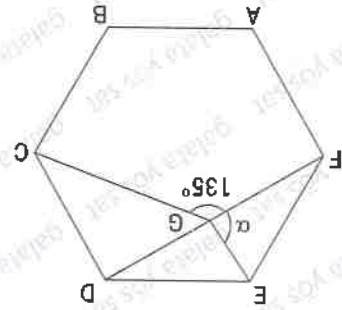
- A) 50 B) 55 C) 60 D) 100 E) 120



12. O merkez  
O center  
 $m(\widehat{ABO}) = 3\alpha$   
 $m(\widehat{ACB}) = 2\alpha$   
 $m(\widehat{AOB}) = ?$

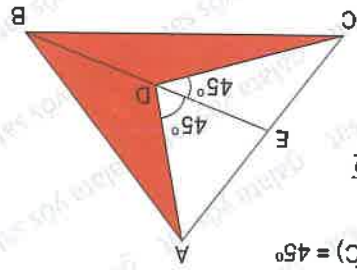
- A) 80 B) 90 C) 100 D) 110 E) 72

18. ABCDEF düzğün altigen  
 ABCDEF regular hexagon  
 $m(\widehat{CGF}) = 135^\circ$   
 $\alpha = ?$
- A) 45 B) 60 C) 75 D) 100 E) 105

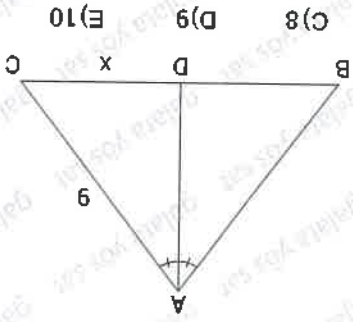


- A)  $18\sqrt{2}$  B)  $20\sqrt{2}$  C)  $24\sqrt{2}$  D)  $27\sqrt{2}$  E)  $30\sqrt{2}$

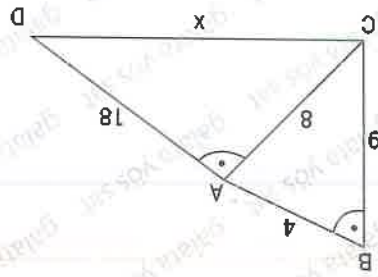
17.  $m(\widehat{ADE}) = m(\widehat{EDC}) = 45^\circ$   
 $|DB| = 3\sqrt{2}$   
 $|AD| + |DC| = 18\sqrt{2}$   
 $A(ABCD) = ?$
- A) 6 B) 7 C) 8 D) 9 E) 10



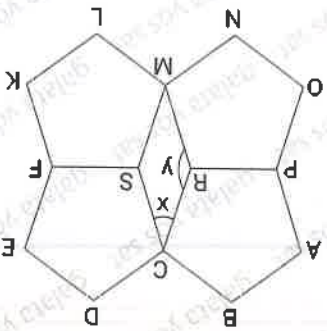
20. [AD] açıortay  
 $|AC| = 9$   
 $x \in Z^+$   
 $x \text{ max} = ?$



16.  $m(\widehat{CBA}) = m(\widehat{CAD})$   
 $|AB| = 4$   
 $|AC| = 8$   
 $|BC| = 9$   
 $|AD| = 18$   
 $|CD| = x = ?$
- A) 8 B) 14 C) 14 D) 16 E) 18



19. ABCRP; düzğün beşgen  
 ABCRP; regular pentagon  
 CDEFS, " "  
 SFKLM, " "  
 PRMNO, " "  
 $m(\widehat{MRC}) = y$   
 $m(\widehat{RCS}) = x$   
 $y - x = ?$
- A) 100 B) 108 C) 110 D) 112 E) 120





# Başarıya Götüren Yol

Mat	Problems / Problems	Mat	Circle - Area
Mat	Problems / Problems	Mat	Circle - Area
Mat	Problems / Problems	Mat	Circle - Area

Mat	Length / Length	Mat	Area of Similar Figures
Mat	Area of Similar Figures	Mat	Area of Similar Figures
Mat	Area of Similar Figures	Mat	Area of Similar Figures

## KTS-23

Mat	Derivatives / Derivatives	Mat	Area of Similar Figures
Mat	Area of Similar Figures	Mat	Area of Similar Figures
Mat	Area of Similar Figures	Mat	Area of Similar Figures

Mat	Logarithm, Induction	Mat	Custom Defined Functions
Mat	Custom Defined Functions	Mat	Custom Defined Functions
Mat	Custom Defined Functions	Mat	Custom Defined Functions

Mat	Karmaşık Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry
Mat	Trigonometri / Trigonometry	Mat	Trigonometri / Trigonometry
Mat	Trigonometri / Trigonometry	Mat	Trigonometri / Trigonometry

Mat	Modüler Aritmetik	Mat	Polinom / Polynomial
Mat	Polinom / Polynomial	Mat	Polinom / Polynomial
Mat	Polinom / Polynomial	Mat	Polinom / Polynomial

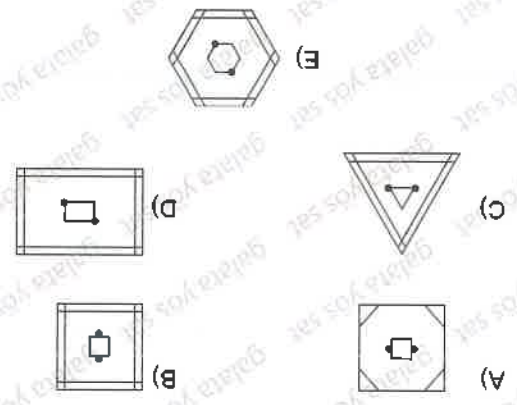
Mat	İşlem / Operation	Mat	Kesirler / Fractions
Mat	Kesirler / Fractions	Mat	Kesirler / Fractions
Mat	Kesirler / Fractions	Mat	Kesirler / Fractions

Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers
Mat	Sayılar / Numbers	Mat	Sayılar / Numbers
Mat	Sayılar / Numbers	Mat	Sayılar / Numbers

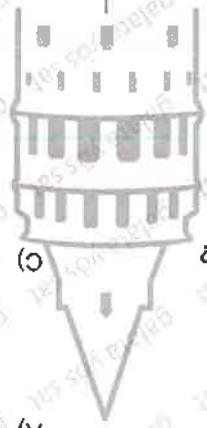
Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Çarpma Ayrma / Factorization
Mat	Çarpma Ayrma / Factorization	Mat	Çarpma Ayrma / Factorization
Mat	Çarpma Ayrma / Factorization	Mat	Çarpma Ayrma / Factorization

Mat	İşlem Ücreti ve Rasyonel Sayılar	Mat	Birinci Dereceden Denklemler
Mat	Birinci Dereceden Denklemler	Mat	Birinci Dereceden Denklemler
Mat	Birinci Dereceden Denklemler	Mat	Birinci Dereceden Denklemler

1. Aşağıdakilerden hangisi diğerlerinden farklıdır ?



2. Aşağıdakilerden hangisi diğerlerinden farklıdır ?



- A) FG B) RS C) FE D) TU E) NO

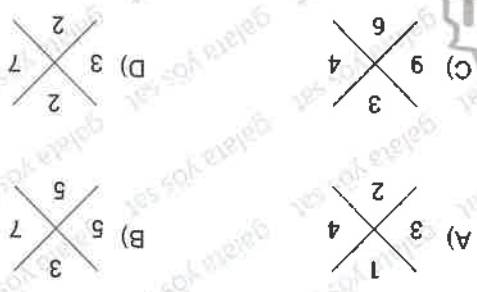
3. Aşağıdakilerden hangisi diğerlerinden farklıdır ?

- A) 3421 B) 7553 C) 3842 D) 4782 E) 9327

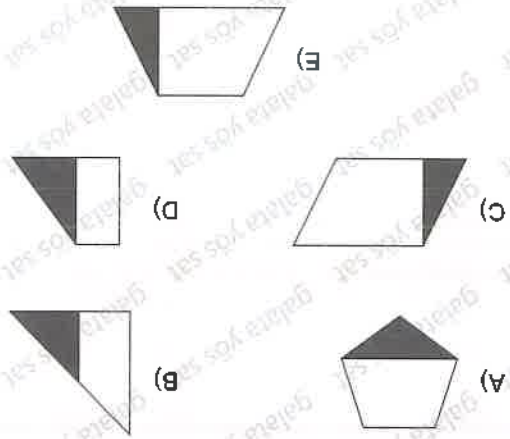
4. Aşağıdakilerden hangisi diğerlerinden farklıdır ?

- A) NAFİLE B) NEDİME C) ZAHİRE D) KAHİRE E) FARİZE

5. Aşağıdakilerden hangisi diğerlerinden farklıdır ?

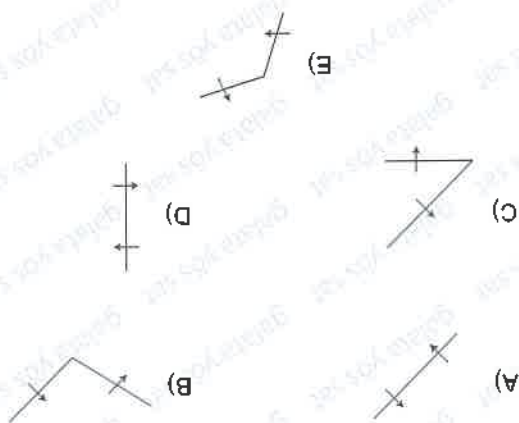


6. Aşağıdakilerden hangisi diğerlerinden farklıdır ?

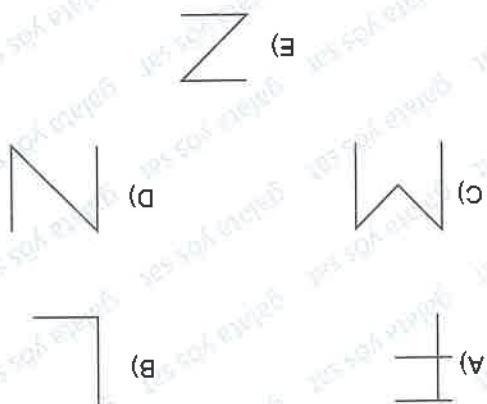




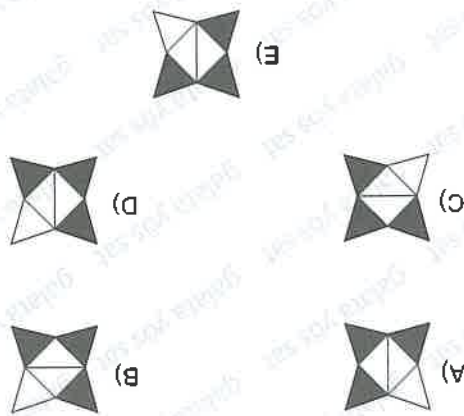
7. Aşağıdakilerden hangisi diğerlerinden farklıdır ?  
Which of the following is different from the others?



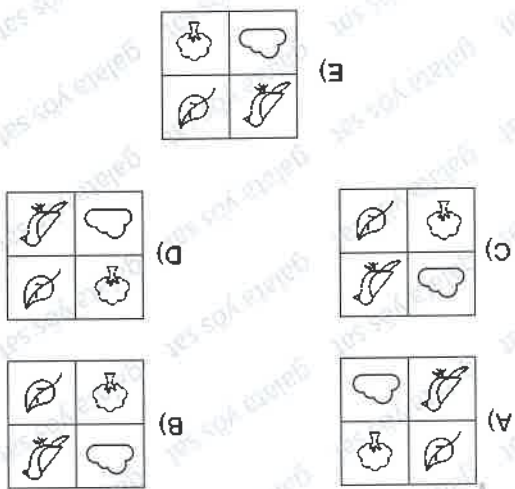
9. Aşağıdakilerden hangisi diğerlerinden farklıdır ?  
Which of the following is different from the others?



8. Aşağıdakilerden hangisi diğerlerinden farklıdır ?  
Which of the following is different from the others?

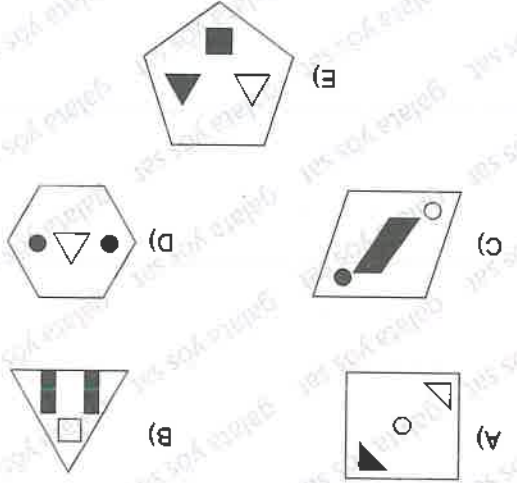


10. Aşağıdakilerden hangisi diğerlerinden farklıdır ?  
Which of the following is different from the others?



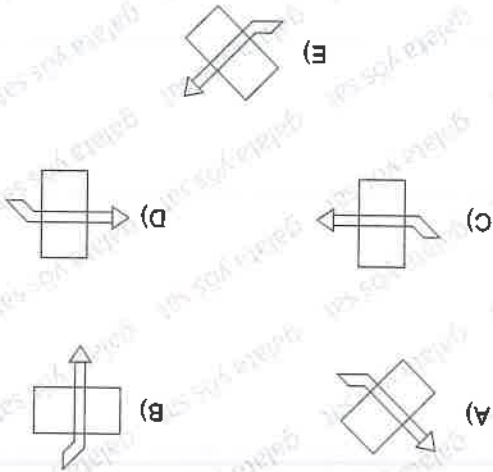
11. Aşağıdaki şekiller ikiserli eşleştirildiği zaman esi olmayan şekli hangisidir?

When the figures below are matched by pair, what is the unique figure?



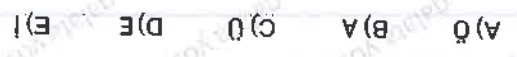
14. Aşağıdakilerden hangisi diğerlerinden farklıdır ?

Which of the following is different from the others?



12. Aşağıdaki şekiller ikiserli eşleştirildiği zaman, esi olmayan şekli hangisidir ?

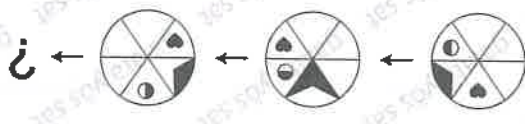
When the figures below are matched by pair, what is the unique figure?



15.

Aşağıdakilerden hangisi diğerlerinden farklıdır ?

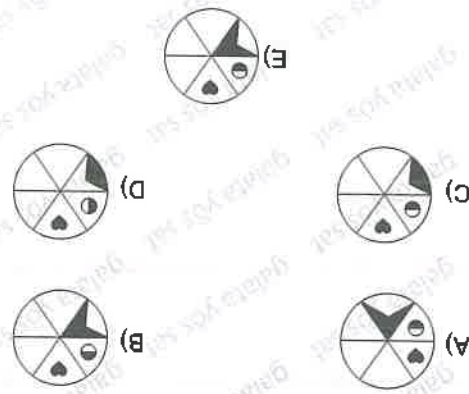
Which of the following is different from the others?



16.

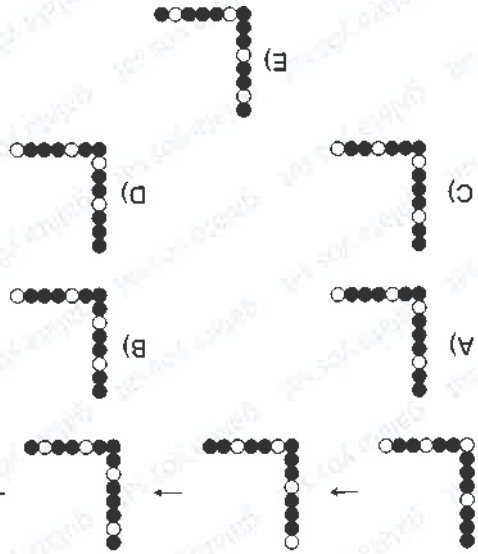
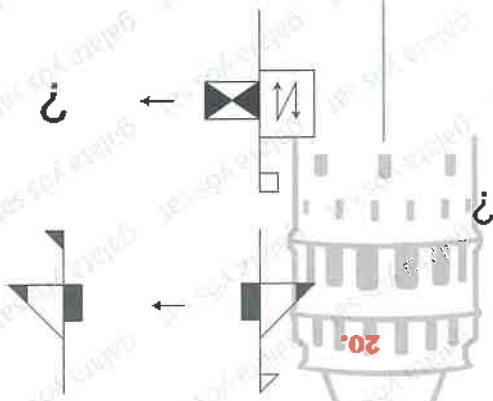
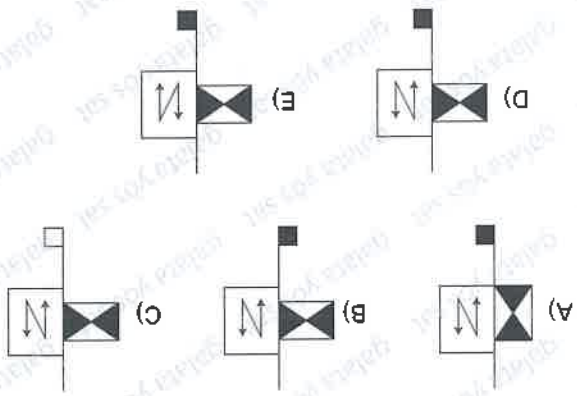
13. Aşağıdakilerden hangisi diğerlerinden farklıdır ?

Which of the following is different from the others?

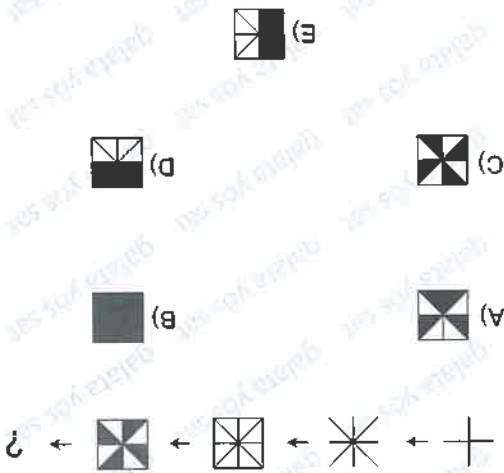


- A) 11, 13, 17, 25, 32
- B) 22, 26, 34, 41, 46
- C) 14, 16, 19, 23, 28
- D) 92, 103, 107, 115, 122
- E) 49, 62, 70, 77, 91

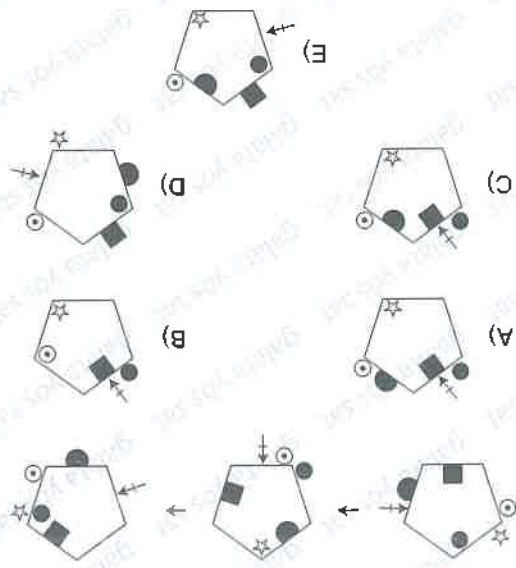




18.

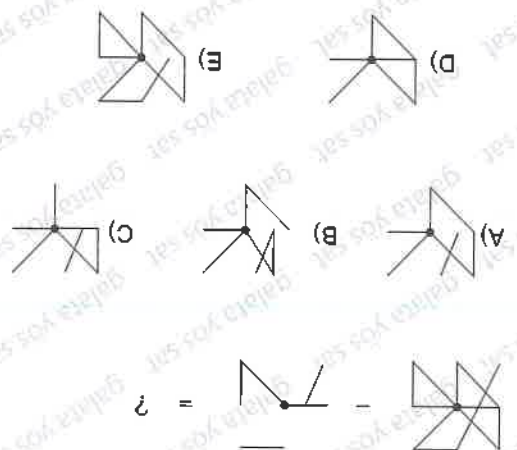
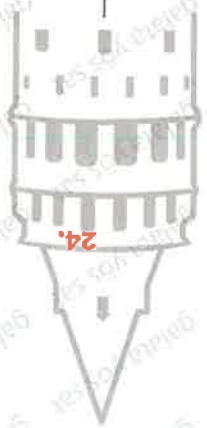
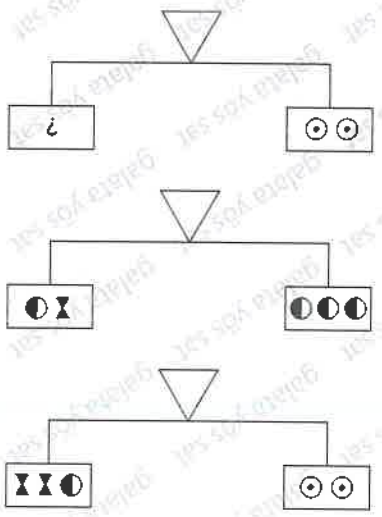


19.

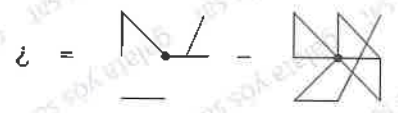


17.

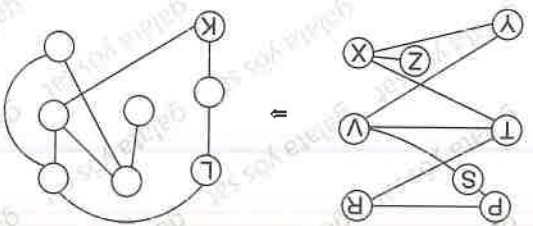
- A) ●●●●●
- B) ●●●●●
- C) ●●●●●
- D) ●●●●●
- E) ●●●●●



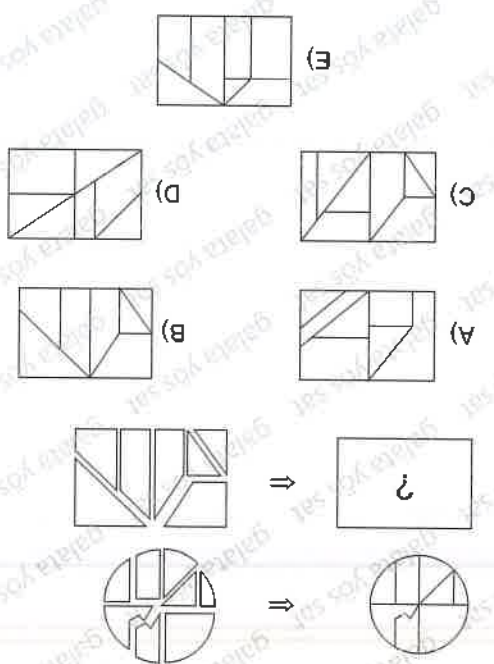
22.



- A) T V L
- B) P R S
- C) V S S
- D) R S S
- E) S R R



23.

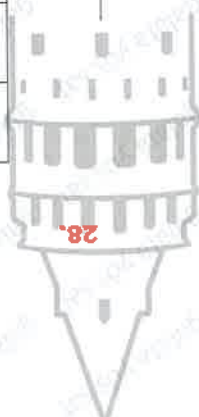


21.

- A) 61 B) 70 C) 78 D) 86 E) 89

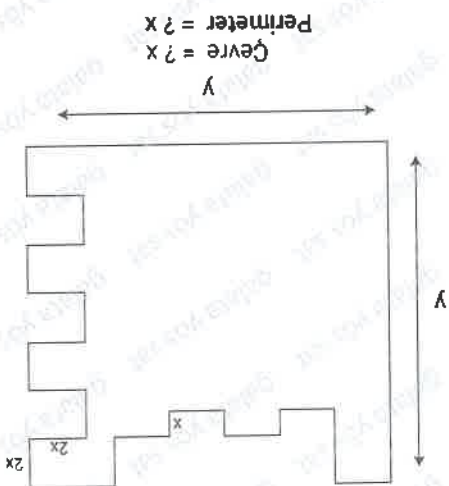
○	A	B	25
⬡	45	52	C
▭	25	32	41
△	□	⬠	

$\Rightarrow A+B+C = ?$



28.

- A) 72 B) 73 C) 76 D) 78 E) 80



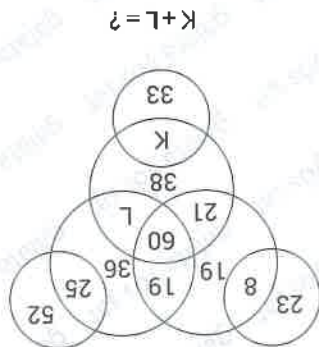
27.

- A) K B) L C) M D) N E) P  
 ((K \* P) \* (M \* N)) \* L = N \* ?

P	N	P	K	L	M
N	M	N	P	K	L
M	L	M	N	P	K
L	K	L	M	N	P
K	P	K	L	M	N
*	K	L	M	N	P

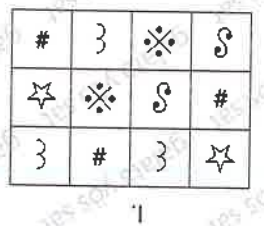
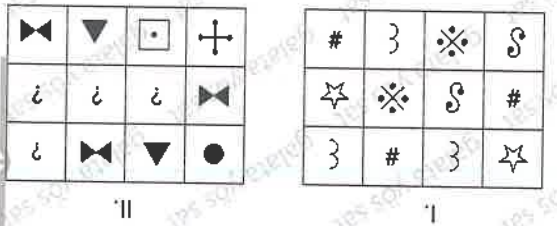
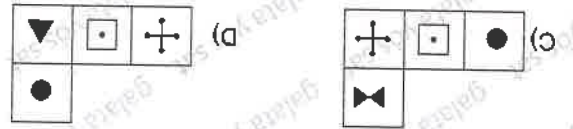
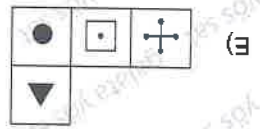
26.

- A) 47 B) 41 C) 35 D) 37 E) 29

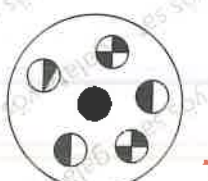
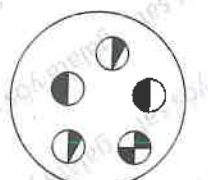
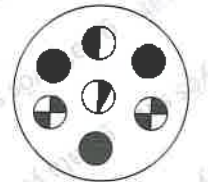


$K+L = ?$

25.



30.



29.

3.  $f(x) = -\frac{3}{1}x^3 + ax^2 - x - 1$   
 If the function is always decreasing, what range is  $a$ ?  
 fonksiyonu daima azalan ise  $a$  hangi aralıktadır?

- A)  $(-\infty, -1)$
- B)  $(-1, 0)$
- C)  $(0, 1)$
- D)  $(-1, 1)$
- E)  $(1, \infty)$

2.  $\lim_{x \rightarrow -\infty} \frac{2^{x+1} + 3^x}{3^{x+1} + 2^x} = ?$

- A)  $\frac{3}{1}$
- B)  $\frac{3}{2}$
- C) 1
- D)  $\frac{3}{4}$
- E) 2

1.  $\lim_{x \rightarrow 0} \frac{\cos x}{\operatorname{cosec} x} = ?$

- A)  $-\infty$
- B)  $-1$
- C) 0
- D) 1
- E)  $\infty$



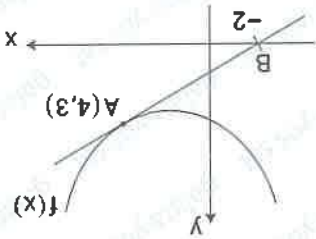
7.

$y = x^3 - 2x^2 + 3$  fonksiyonunun  $x=1$  apsisi noktasındaki teğetin eğimi kaçtır ?

What is the slope of the tangent of the  $y = x^3 - 2x^2 + 3$  function at the abscissa point  $x = 1$  ?

- A) -2 B) -1 C) 1 D) 2 E) 3

8.



Şekilde A(4,3) ve B(-2,0) noktaları verilmiştir.

f fonksiyonu AB doğrusuna A noktasında teğet ise

Points A (4,3) and B (-2,0) are given in the figure.

If the function f is tangent to the line AB at point A

$$\lim_{x \rightarrow 4} \frac{f(x) - 3}{x - 4} = ?$$

- A) 0 B) 1 C) 2 D) 3 E) 4

9.

$$f(x) = \frac{3}{1}x^3 - x^2 + 1$$

fonksiyonunun dönüm noktasından çizilen teğetin

denklemini hangisidir ?

Which is the equation of the tangent drawn from the turning point of the function?

- A)  $y = 3x - 1$  B)  $3y = 3x - 1$  C)  $3y = -3x - 4$

- D)  $3y = 3x - 2$  E)  $3y = -3x + 4$

4.

f ve g fonksiyonları (a,b) aralığında pozitif tanımlı, f(x) artan ve g(x) azalan bir fonksiyon olduğuna göre, aşağıdakiler-

den hangisi daima artandır ?

Since f and g are positively definite functions in the interval (a, b), f(x) increasing and g(x) decreasing, which of the following is always increasing?

- A)  $f(x) + g(x)$  B)  $g(x) - f(x)$  C)  $f(x) \cdot g(x)$   
D)  $\frac{f(x)}{g(x)}$  E)  $\frac{f(x)}{g(x)}$

5.

$f(x) = \ln \frac{x^2}{x^2}$  fonksiyonunun yerel ekstremum noktasının

apsisi kaçtır ?

What is the abscissa of the local extreme point of the

$f(x) = \ln \frac{x^2}{x^2}$  function?

- A)  $e^{\frac{1}{2}}$  B)  $e^{\frac{1}{2}}$  C) 0 D) e E)  $e^2$

6.

$f(x) = x^3 - 3ax^2 + 3x + 1$  veriliyor. f'(x) fonksiyonunun

yerel minimum değerinin sıfır olması için a kaç

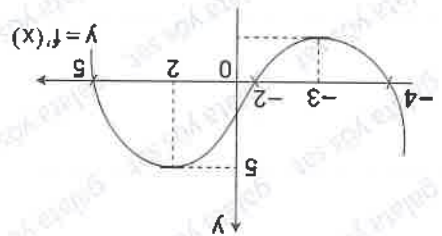
olmalıdır ?

f(x) =  $x^3 - 3ax^2 + 3x + 1$  is given. What must A be for the local minimum value of f'(x) to be zero ?

- A)  $\pm 1$  B)  $\pm 2$  C)  $\pm 3$  D)  $\pm 4$  E) 0

10. Yarıçapı 4 cm olan bir kürenin içine gizlenen maksimum hacimli dik silindirin yüksekliği kaç cm dir ?  
What is the height of a vertical cylinder with maximum volume drawn in a sphere with a 4 cm radius?

A)  $4\sqrt{3}$  B)  $2\sqrt{3}$  C)  $8\sqrt{3}$  D)  $\sqrt{3}$  E)  $\frac{4\sqrt{3}}{3}$



Yukarıdaki  $f'(x)$  türev fonksiyonunun grafiği verilmiştir. Buna göre  $f$  fonksiyonu için hangisi doğrudur ?

The graph of the derivative function  $y = f'(x)$  is given above. So which one is true for function  $f$ ?

A)  $0 < x < 5$  aralığında azalır / decrease

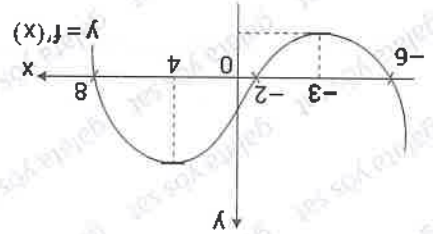
B)  $-3 < x < -2$  aralığında artar / increase

C)  $x = 2$  de yerel maksimum vardır / local maximum

D)  $x = -4$  de yerel maksimum vardır / local maximum

E)  $x = -2$  de yerel maksimum vardır / local maximum

12.



Yukarıdaki  $f'(x)$  fonksiyonunun grafiğine göre aşağıdakilerden hangisi kesinlikle yanlıştır ?  
According to the graph of the function  $f'(x)$  above, which of the following is absolutely false?

A)  $f'(-5) \cdot f'(2) < 0$

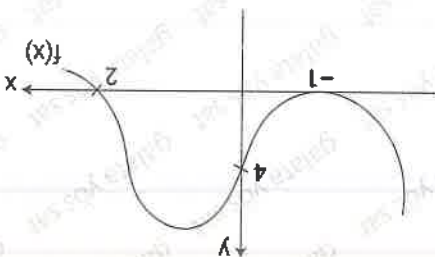
B)  $f'(-3) \cdot f'(4) < 0$

C)  $f'(-3) + f'(5) < 0$

D)  $f''(3) \cdot f''(4) < 0$

E)  $f'(4) - f'(6) > 0$

13.



Yukarıda grafiği verilen fonksiyon aşağıdakilerden hangisidir ?

Which of the following is the function graphed above?

A)  $y = 4(x+1)^2 \cdot (x-2)$

B)  $y = 2(x+1)^2 \cdot (x-2)$

C)  $y = (x+1)^2 \cdot (x-2)$

D)  $y = -(x+1)^2 \cdot (x-2)$

E)  $y = -2(x+1)^2 \cdot (x-2)$

14. 60 kişilik bir grupta Fransızca bilen 50 kişi, Almanca bilen 46 kişi olduğuna göre Fransızca ve Almanca bilen kaç kişidir ?

Since there are 50 people in a group of 60 who speak French and 46 who speak German, how many people are there who can speak French and German?

- A) 14 B) 24 C) 28 D) 36 E) 38

15.



1,2,3,4,5,6,7,8,9 sayılarının her birini seçilerek kutulara yerleştirildiğimizde ilk beş kutuda bulunan sayıların toplamı 18, son beş kutuda bulunan sayıların toplamı 32 olduğuna göre, boyalı kutuda bulunan sayı kaçtır ?

When we place each of the numbers 1,2,3,4,5,6,7,8,9 in the boxes shown in the figure, the total of the numbers in the first five boxes is 18, and the total of the numbers in the last five boxes is 32, what is the number in the painted box?

- A) 2 B) 3 C) 4 D) 5 E) 6



16.  $a \in \mathbb{Z}^+$ 

$$\frac{a}{7} \mid \frac{1}{3b-3} \quad \frac{b-5}{a} \mid \frac{15}{11}$$

$$= a+b=?$$

- A) 185 B) 178 C) 174 D) 169 E) 167

17.

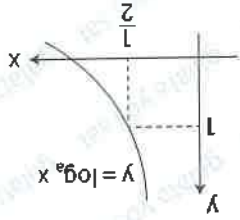
$$3 + \frac{1}{1 + \frac{1}{z}} = \frac{1}{1 + \frac{1}{x}} + \frac{1}{1 + \frac{1}{y}} \quad 2 + \frac{1}{1 + \frac{1}{z}} = \frac{1}{1 + \frac{1}{x}} + \frac{1}{1 + \frac{1}{y}} = ?$$

- A) -3 B) -5 C) -6 D) -9 E) -11

18.  $2^{2x} - 5 \cdot 2^{x+2} + 64 = ?$   
denklemi sağıyan  $x$  değerinin toplamı kaçtır?  
What is the sum of the  $x$  value that satisfies the equation?

- A) 3 B) 5 C) 6 D) 8 E) 20

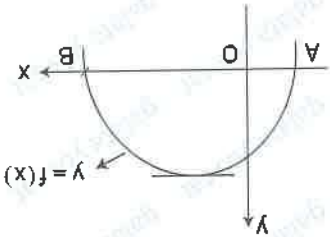
21.



Şekilde  $f(x) = \log_a x$  fonksiyonunun grafiği verilmiştir.  
The graph of the function  $f(x) = \log_a x$  is given in the figure.  
 $\Rightarrow f\left(f\left(\frac{1}{16}\right)\right) = ?$

- A) -3 B) -2 C) -1 D) 2 E) 3

20.



$y = f(x) = -2x^2 + 4x + 3m + 2$  parabolünün grafiği verilmiştir.  
The graph of the  $y = f(x) = -2x^2 + 4x + 3m + 2$  parabola is given.  
 $|OB| = 3 \mid OA|$ , what is the ordinate of the point where  $f(x)$  intersects the  $y$ -axis?  
eksenini kestiği noktanın ordinatı kaçtır?

- A)  $\frac{3}{1}$  B)  $\frac{3}{2}$  C) 1 D)  $\frac{3}{4}$  E) 6

19.  $z = 1 + \sqrt{3}i$ 

$z$  sayısının carpma işlemine göre tersinin reel kısmı kaçtır?  
What is the real part of the inverse of the number  $z$  by multiplication?

- A)  $\frac{4}{\sqrt{3}}$  B)  $\frac{1}{2}$  C)  $\frac{1}{4}$  D)  $-\frac{1}{2}$  E)  $-\frac{4}{1}$

24.  $\lim_{x \rightarrow 0} \frac{\ln(\cos x)}{\cos 2x - 1} = ?$

- A)  $-\frac{2}{1}$
- B) 0
- C)  $\frac{4}{1}$
- D)  $\frac{7}{2}$
- E) 1

27.  $y = \ln^2 x + 2 \ln x \Rightarrow \frac{d^2 y}{dx^2} = ?$

- A)  $\ln x$
- B) 0
- C)  $-\frac{2}{\ln x}$
- D)  $-\frac{x^2}{\ln x}$
- E) -1

23.  $\lim_{x \rightarrow \infty} \left( \frac{7 + \frac{1}{x}}{5 - 9x} \right) = ?$

- A) -1
- B) 0
- C) 1
- D) 2
- E) 3

26.  $\frac{x^3 - 2x - 1}{1} = -\frac{4}{5} \Rightarrow \frac{x^3 - 2x + 3}{1} = ?$

- A)  $-\frac{2}{5}$
- B)  $\frac{16}{5}$
- C)  $\frac{16}{7}$
- D)  $\frac{5}{4}$
- E) 1

22.  $\sum_{k=1}^5 (mk + 4) = 110 \Rightarrow m = ?$

- A) 2
- B) 3
- C) 4
- D) 5
- E) 6

25.  $\sin(45 - x) = \frac{4}{\sqrt{3}} \Rightarrow \sin 2x = ?$

- A)  $\frac{8}{5}$
- B)  $\frac{8}{\sqrt{13}}$
- C)  $\frac{4}{3}$
- D)  $\frac{8}{\sqrt{5}}$
- E)  $\frac{8}{\sqrt{15}}$



28.  $\lim_{x \rightarrow 1} \frac{x^3 + x^2 - 5x + 3}{x^3 + 3x^2 - 9x + 5} = ?$

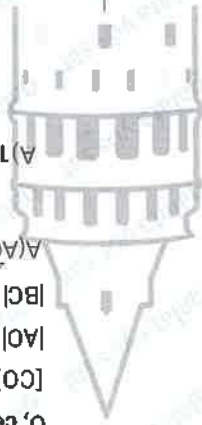
- A) 1 B)  $\frac{3}{2}$  C)  $\frac{3}{1}$  D)  $-\frac{3}{1}$  E)  $-\frac{2}{3}$

29.  $\sin x \neq \cos x$   
 $\frac{1 + \sin 2x}{\cos 2x} = \frac{4 \sin x}{\sin x - \cos x} \Rightarrow \cot x = ?$

- A) -5 B) -3 C)  $-\frac{3}{1}$  D)  $\frac{3}{1}$  E)  $\frac{5}{1}$

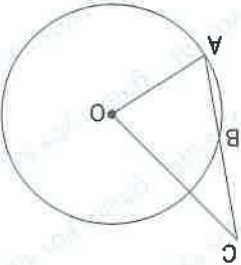
30.  $x = u^3 - u^2 + 2$   
 $y = 6u^2 - 8u \Rightarrow \frac{dy}{dx} = ?$

- A)  $\frac{2+u}{u}$  B)  $\frac{1+u}{u}$  C)  $\frac{2}{u}$  D)  $\frac{u}{2}$  E)  $\frac{4}{u}$



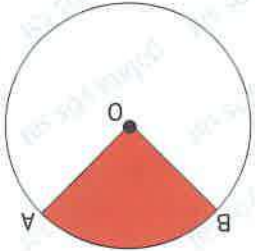
2.

O: dairenin merkezi  
 [CO]  $\perp$  [OA]  
 |AO| =  $2\sqrt{13}$   
 |BC| = 5  
 $\angle AOC = ?$



- A) 16 B) 20 C) 36 D) 38 E) 39

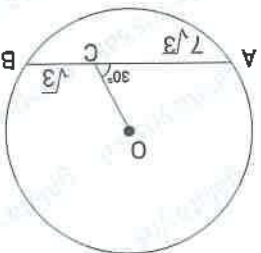
O: dairenin merkezi  
 |AB| = 20  
 |OB| = 7  
 Taralı alan = ?  
 Shaded area = ?



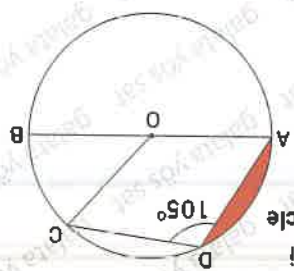
- A) 30 B) 35 C) 45 D) 70 E) 90

1.

O: dairenin merkezi  
 |BC| =  $\sqrt{3}$   
 |AC| =  $7\sqrt{3}$   
 $m(\widehat{CA}) = 30^\circ$   
 Dairenin alanı = ?  
 Area of the circle = ?

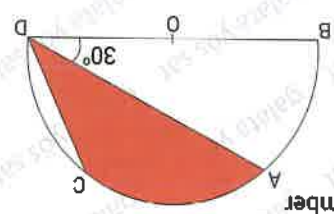


- A)  $2\pi$  B)  $9\pi$  C)  $27\pi$  D)  $48\pi$  E)  $57\pi$



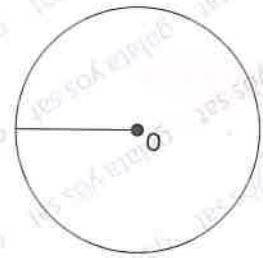
4.  $O_1$ : dairenin merkezi!  
 $m(\widehat{CD}) = 90^\circ$   
 $m(\widehat{ADC}) = 105^\circ$   
 $|OB| = 8$   
 Taralı alan = ?  
 Shaded area = ?

- A)  $\frac{3}{32}\pi$  B)  $\frac{3}{32}\pi - 16\sqrt{3}$  C)  $\frac{3}{32}\pi - 8\sqrt{3}$   
 D)  $\frac{3}{32}\pi + 16\sqrt{3}$  E)  $\frac{3}{32}\pi + 8\sqrt{3}$



5. [BD] yarım çaplı çember  
 [BD] diameter  
 $m(\widehat{AB}) = m(\widehat{AC})$   
 $m(\widehat{ADB}) = 30^\circ$   
 $|AD| = 7\sqrt{3}$   
 Taralı alan = ?  
 Shaded area = ?

- A)  $\frac{6}{49}\pi$  B)  $\frac{5}{49}\pi$  C)  $\frac{3}{49}\pi$  D)  $\frac{2}{49}\pi$  E)  $49\pi$



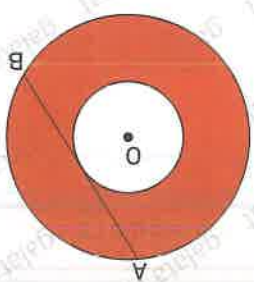
6. Çevresi  $34\pi$  olan dairenin alanı nedir?  
 What is the area of the circle with circumference  $34\pi$ ?

- A)  $34\pi$  B)  $64\pi$  C)  $81\pi$  D)  $144\pi$  E)  $289\pi$



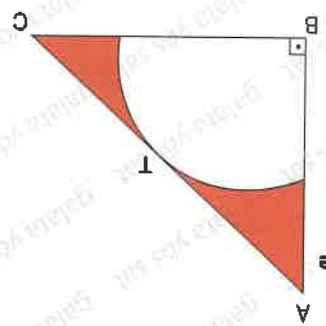
7.  $O$ : çemberlerin ortak merkezi  
 $|AB| = 18$   
 $TA$  (Taralı Alan) = ?  
 Shaded area = ?

- A)  $27\pi$  B)  $36\pi$  C)  $64\pi$  D)  $81\pi$  E)  $100\pi$



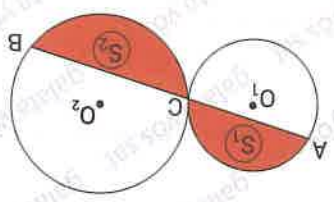
8.

8.  $|TC| = ?$   
 Taralı Alan =  $8\sqrt{3} - 3\pi$   
 Shaded area =  $8\sqrt{3} - 3\pi$



- A)  $6$  B)  $4\sqrt{3}$  C)  $4\sqrt{3} + 4$  D)  $8\sqrt{3}$  E)  $9\sqrt{3}$

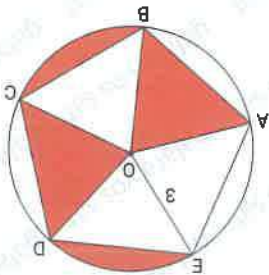
9.  $O_1$ : dairenin merkezi  
 $O_2$ : dairenin merkezi  
 $\frac{S_1}{S_2} = \frac{16}{1}$   
 $|BC| = 32$   
 $|AC| = ?$



9. A)  $4$  B)  $6$  C)  $8$  D)  $12$  E)  $16$

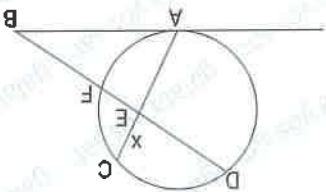


10. O: merkez / center  
 ABCDE : düzgen besgen  
 ABCDE : regular pentagon  
 $|OE| = 3$   
 O: düzgen besgen'in ağırlık merkezi  
 O:center of gravity of regular pentagon  
 Taralı alan = ?  
 Shaded area = ?



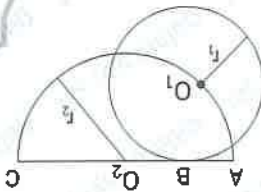
- A)  $9\pi$  B)  $13\pi$  C)  $\frac{18\pi}{5}$  D)  $\frac{18\pi}{7}$  E)  $18\pi$

13. A: teğet noktasi  
 A: tangent point  
 $|AE| = |BF| = 4$   
 $|AB| = 8$   
 $|ED| = 7$   
 $|EC| = x = ?$



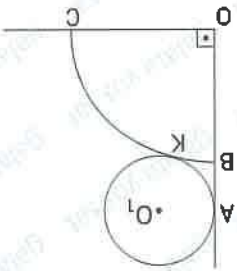
- A)  $\frac{4}{35}$  B) 8 C) 11 D) 14 E) 16

11. O<sub>1</sub>: tam gemberin merkezi  
 O<sub>1</sub>: center of full circle  
 O<sub>2</sub>: yarım gemberin merkezi  
 O<sub>2</sub>: center of semicircle  
 B: teğet noktasi  
 B: tangent point  
 $|O_2B| = 2|AB|$   
 $\frac{r_1}{r_2} = ?$



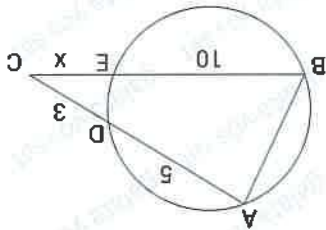
- A)  $\frac{3}{\sqrt{5}}$  B)  $\frac{2}{\sqrt{5}}$  C)  $\sqrt{5}$  D)  $2\sqrt{5}$  E)  $3\sqrt{5}$

14. O<sub>1</sub>: geyrek gemberin merkezi  
 O<sub>1</sub>: center of the quarter circle  
 O<sub>2</sub>: tam gemberin merkezi  
 O<sub>2</sub>: center of the full circle  
 A, K: Teğet noktasi  
 A, K: Tangent points  
 $|AO_1| = 5$   
 $|OC| = 8$   
 $|AB| = x = ?$



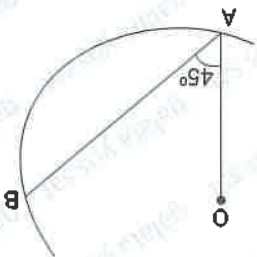
- A) 1 B) 2 C) 3 D) 4 E) 5

12. |CD| = 3  
 $|AD| = 5$   
 $|BE| = 10$   
 $|EC| = x = ?$



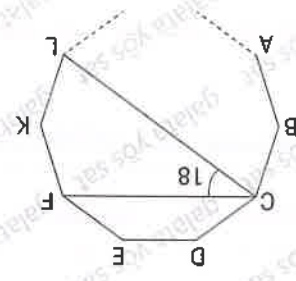
- A) 2 B) 3 C) 4 D) 6 E) 8

15. O: ABC gemberin merkezi  
 O:center  
 $m(\widehat{OAB}) = 45^\circ$   
 $|AB| = 10$   
 $|AO| = r = ?$

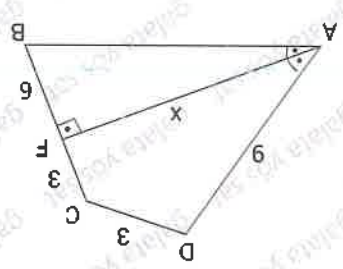


- A)  $5\sqrt{2}$  B)  $7\sqrt{2}$  C)  $8\sqrt{2}$  D)  $9\sqrt{2}$  E)  $10\sqrt{2}$

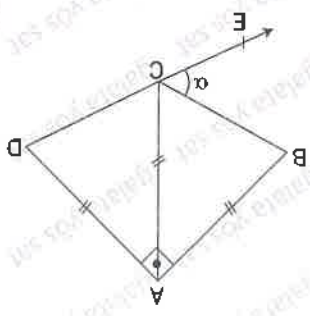
18. ABCDEF ..... düzün çöken  
 ABCDEF ..... regular polygon  
 $m(\angle C) = 18^\circ$   
 Çöken kaç kenarlıdır ?  
 How many sides does this  
 polygon have?  
 A) 17 B) 18 C) 19 D) 20 E) 21



- A) 6 B) 9 C)  $6\sqrt{3}$  D)  $9\sqrt{3}$  E)  $12\sqrt{3}$

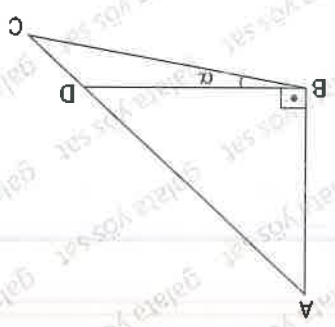


20.  $[AF] \perp [BC]$   
 $m(\widehat{DAF}) = m(\widehat{FAB})$   
 $|CD| = |CF| = 3$   
 $|BF| = 6$   
 $|AD| = 9$   
 $|AF| = x = ?$

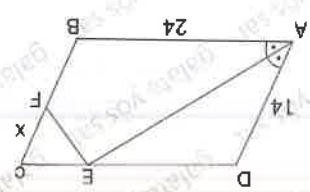


17.  $[BA] \perp [DA]$   
 $|AB| = |AC| = |AD|$   
 $m(\widehat{BCE}) = \alpha = ?$

- A) 6 B) 7 C) 8 D) 9 E) 10



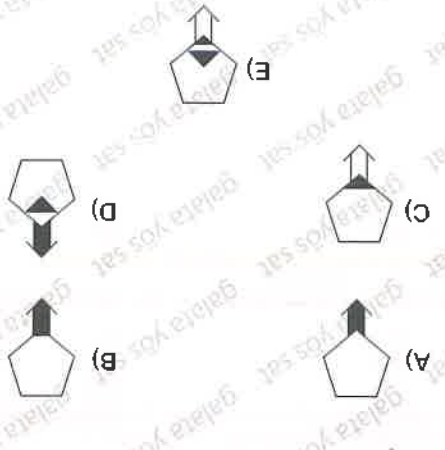
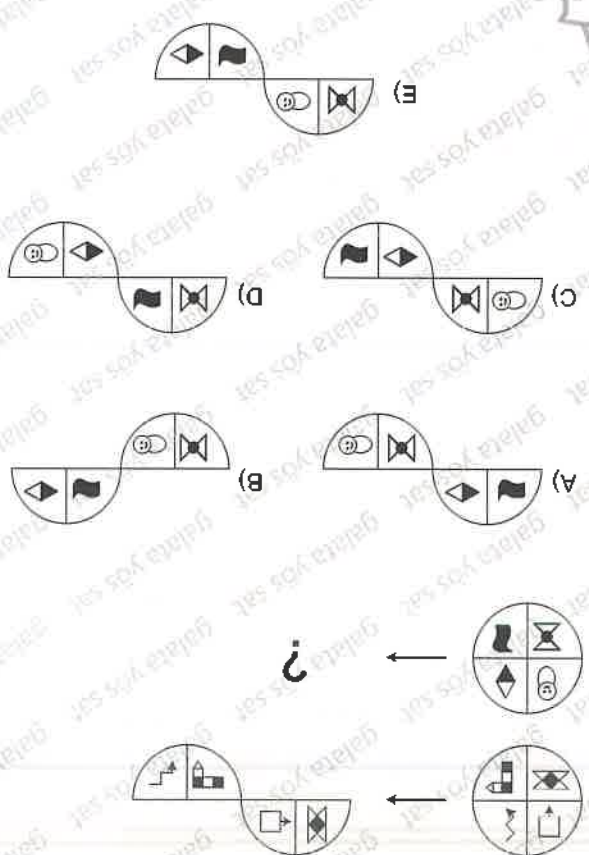
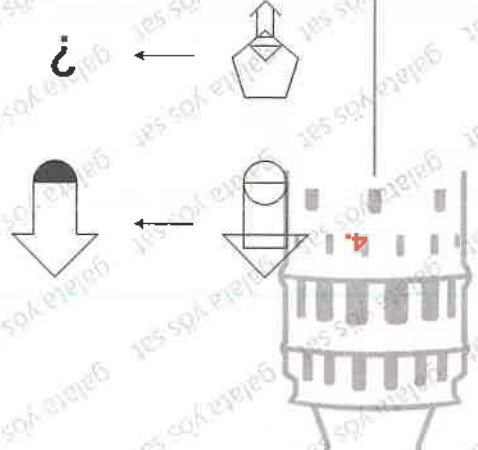
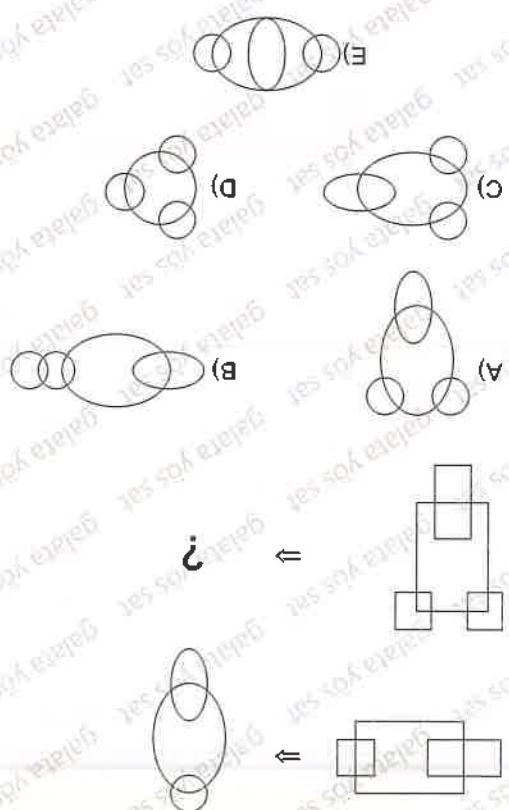
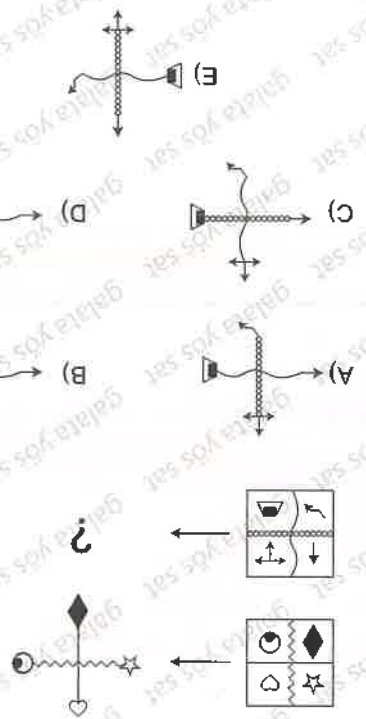
19.  $[AB] \perp [BD]$   
 $|AD| = 2 |BC|$   
 $m(\widehat{BAC}) = 24^\circ$   
 $m(\widehat{CBD}) = \alpha = ?$



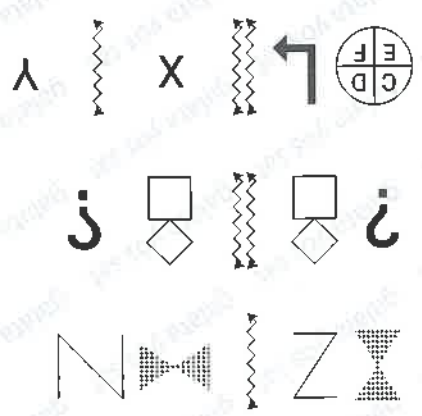
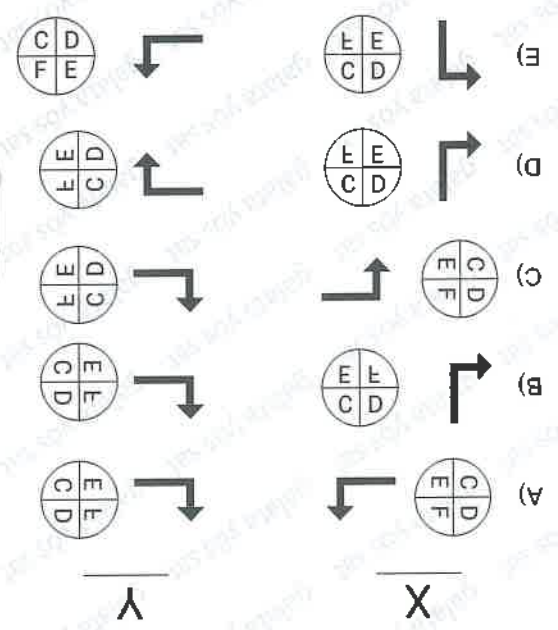
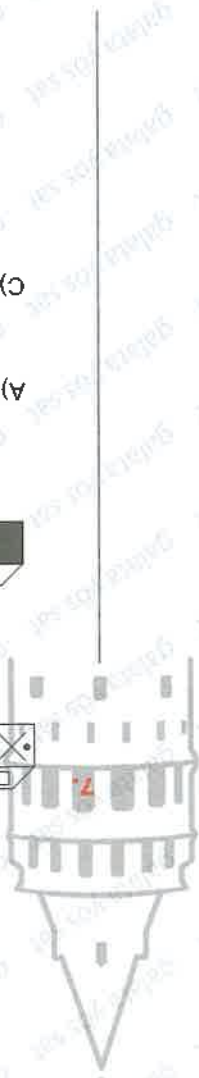
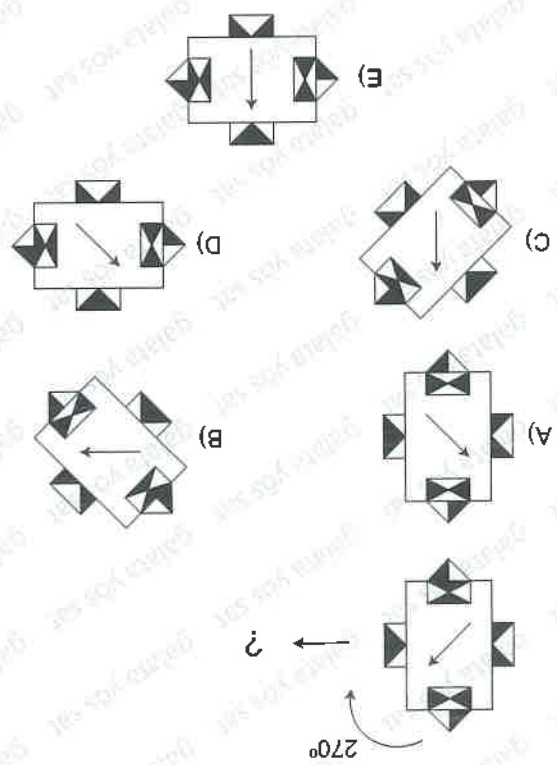
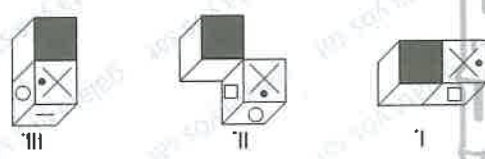
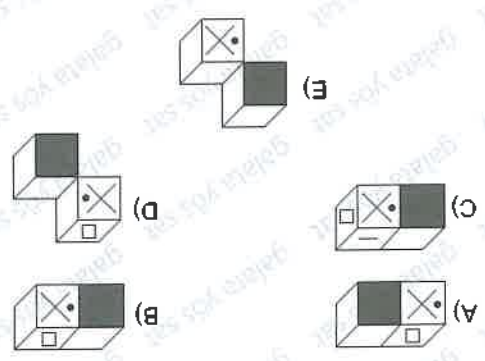
16. ABCD bir paralelkenar  
 $m(\widehat{DAE}) = m(\widehat{EAB})$   
 $[AE] \perp [EF]$   
 $|AD| = 14$   
 $|EF| = 8$   
 $|AB| = 24$   
 $x = ?$





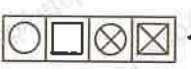
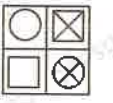
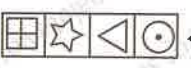
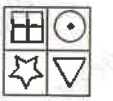
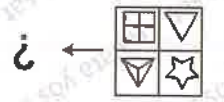




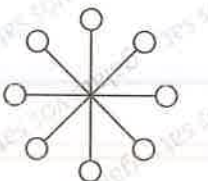
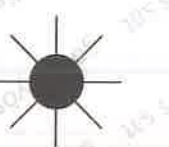
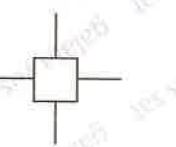
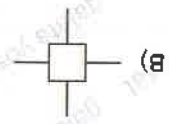
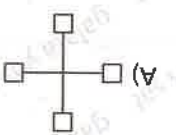
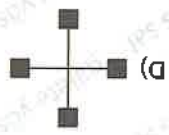
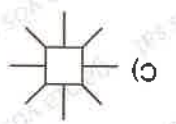
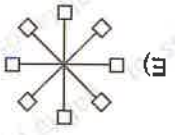


6.

5.



9.



8.

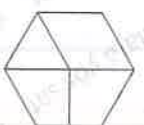
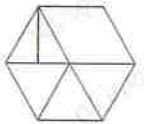
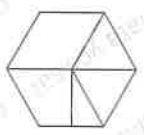


- A)  $\frac{3}{10}$
- B)  $\frac{3}{8}$
- C)  $\frac{3}{11}$
- D)  $\frac{4}{10}$
- E)  $\frac{2}{9}$

$\frac{4}{1} + 4$

$\frac{4}{1} + 8$

- A)  $2k + l + m + n$
- B)  $k + 2l + m + n$
- C)  $k + l + 2m + n$
- D)  $k + l + m + 2n$
- E)  $k + l + m + n$

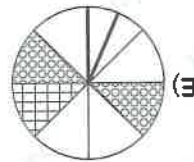
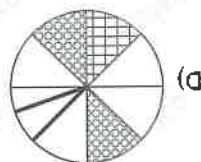
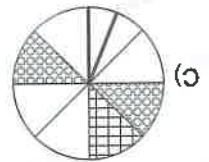
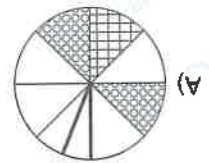
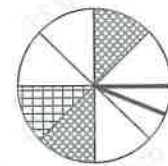


- $2k + l + m$
- $3l + m + 2n$
- ?

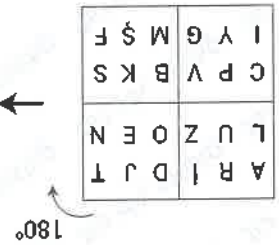
10.

12.

Yukarıdaki şekil saat yönünde 90° döndürülürse aşağıdakilerden hangisi elde edilir ?  
 which of the following is the figure obtained by rotating the above figure 90° clockwise ?



13.

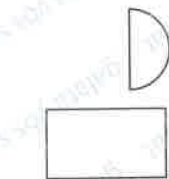
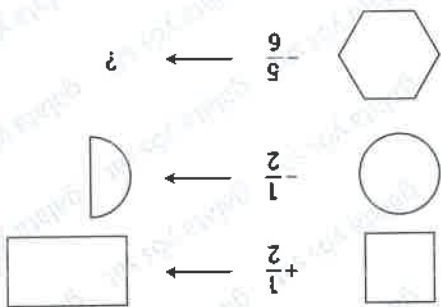


1,8,21	22,16,7
30,18,25	11,14,20
17,31,5	3,4,15
9,23,6	13,2,9

AŞKBAKİŞLİ = 124  
 KALPSAKINI = ?

- A) 116 B) 164 C) 156 D) 147 E) 143

14.



+1/2



-1/2



-5/6



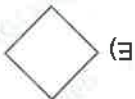
?



A)



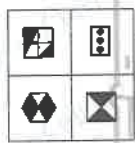
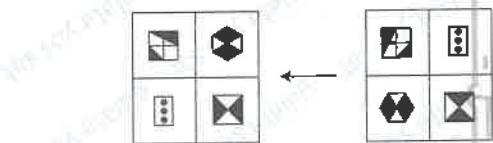
C)



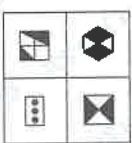
E)



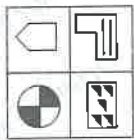
D)



A)



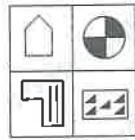
B)



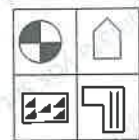
C)



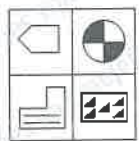
D)



E)



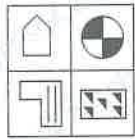
A)



B)



C)



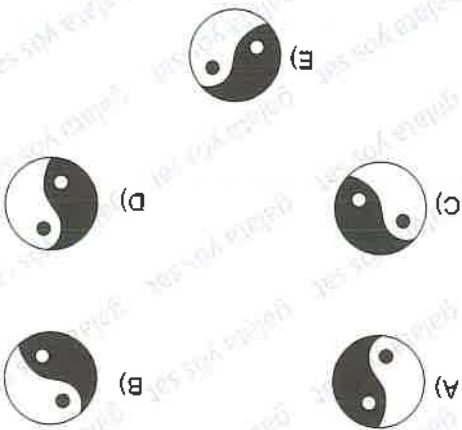
D)



16. Aşağıdakilerden hangisi diğerlerinden farklıdır?  
Which of the following is different from the others?

- A) 891 B) 479 C) 684 D) 142 E) 255

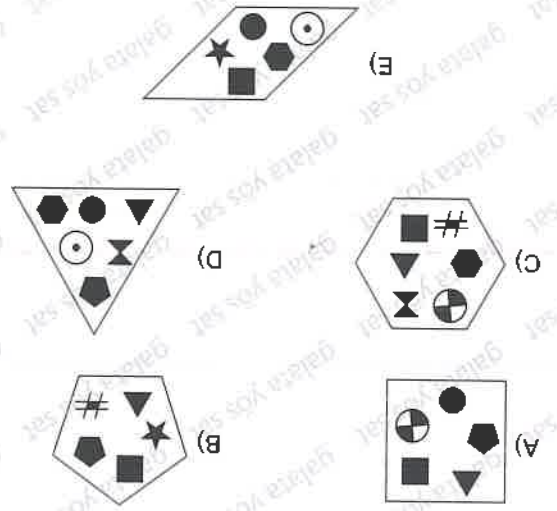
19. Aşağıdakilerden hangisi diğerlerinden farklıdır?  
Which of the following is different from the others?



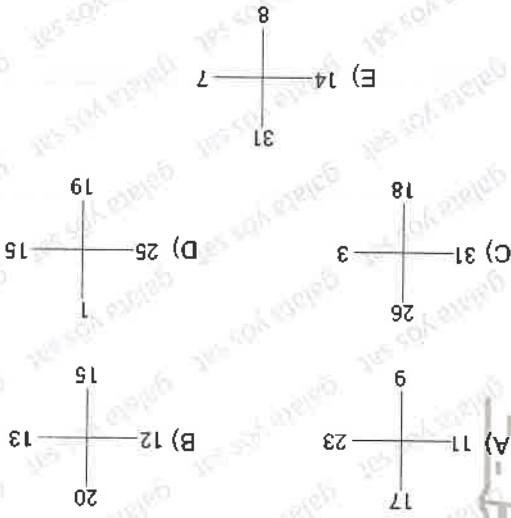
17. Aşağıdakilerden hangisi diğerlerinden farklıdır?  
Which of the following is different from the others?

- A) 67 B) 98 C) 379 D) 986 E) 27

18. Aşağıdakilerden hangisi diğerlerinden farklıdır?  
Which of the following is different from the others?



20. Aşağıdakilerden hangisi diğerlerinden farklıdır?  
Which of the following is different from the others?





- A) 18, 36, 27, 45  
 B) 20, 40, 80, 60  
 C) 12, 24, 60, 36  
 D) 8, 16, 60, 42  
 E) 28, 56, 42, 80

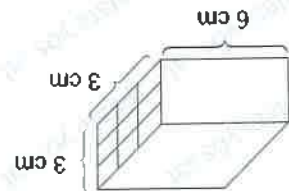


- A) 2  
 B) 6  
 C) 100  
 D) 120  
 E) 720

22. Aşağıda verilen şekil gruplarının diziliş kuralına uyan sayı grubu aşağıdakilerden hangisidir?  
 Find the figure which corresponds to the place indicated by the question mark following the relationship established?
- 26  $\square$  34 = 1  
 92  $\square$  17 = 6  
 56  $\square$  70 = 24  
 98  $\square$  48 = ?

- A) 27  
 B) 54  
 C) 81  
 D) 108  
 E) 216

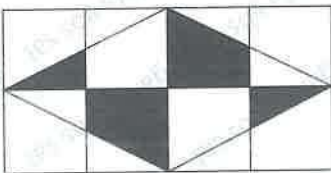
21. Yukarıdaki cisim, 1 cm'lik küçük küplere ayrılırsa kaç tane küçük küp ortaya çıkar?  
 How many cubes are formed if the object above is divided into 1 cm cubes?



21.

23.

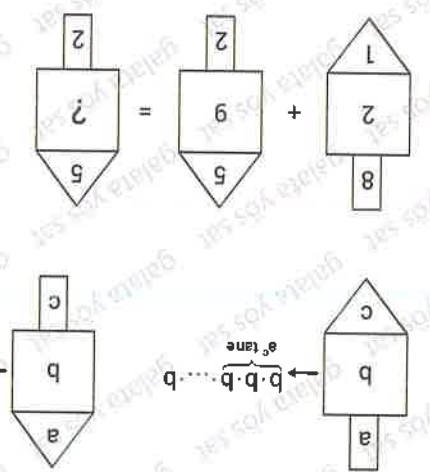
- A) 1  
 B)  $\frac{1}{2}$   
 C)  $\frac{4}{1}$   
 D)  $\frac{32}{9}$   
 E)  $\frac{32}{17}$



Siyah Alan (Black Area) = ?  
 Tüm Alan (All Area) = ?



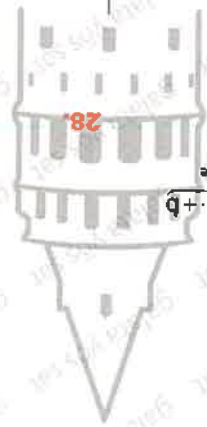
A) 2 B) 5 C) 11 D) 17 E) 34



26.

A) 92 B) 99 C) 117 D) 138 E) 154

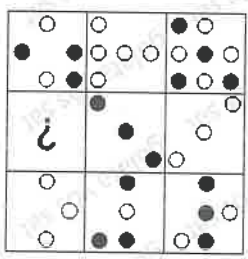
25. 18 27 38 55 85 ?



27.

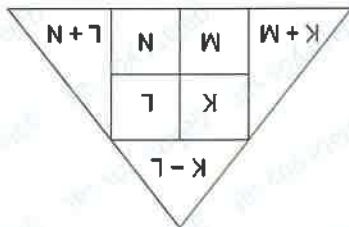


- A)
- B)
- C)
- D)
- E)

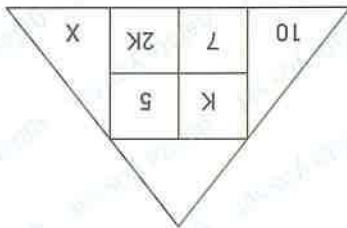


- A)
- B)
- C)
- D)
- E)

29. ve 30. sorular aşağıdaki tabloya göre cevaplandırılabilir. caktır.  
Questions 29 and 30 will be answered according to the following figure.



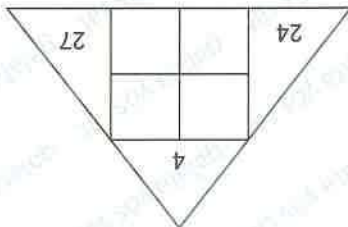
29.



30.

- A) 6 B) 8 C) 9 D) 11 E) 17  
X = ?

- A) 7 B) 16 C) 15 D) 34 E) 45  
N-M = ?



1.  $\frac{d}{dx} \left( \int f(x) dx \right) = ?$

- A)  $f(x)$  B)  $f'(x)$  C)  $f''(x)$  D) 0 E) 1

2.  $\int d[f(x)] = ?$

- A)  $f(x)$  B)  $f(x)+c$  C)  $f'(x)$  D)  $f(x)dx$  E)  $f'(x)dx$

3.  $\int \sqrt{2x+3} dx = ?$

- A)  $\frac{1}{3} \sqrt{2x+3} + c$   
B)  $\frac{3}{1} \sqrt{2x+3} + c$   
C)  $3 \sqrt{2x+3} + c$   
D)  $\frac{1}{3} \sqrt{2x+3} + c$   
E)  $-\frac{1}{3} \sqrt{2x+3} + c$

4.  $d \left( \int (x^2 + x) dx \right) = ?$

- A)  $x^2 + x$  B)  $(x^2 + x) dx$  C)  $2x + 1$  D)  $(2x + 1) dx$  E) 1



8.  $\int 6x^4 - 3x^2 dx = ?$

- A)  $2x^2 - 3 \ln x + c$
- B)  $2x^5 - 3 \ln x + c$
- C)  $4x^3 - 3 \ln x + c$
- D)  $3x^3 + 3 \ln x + c$
- E)  $2x^3 - 3x + c$

7.  $\int (3x - x^3) dx = ?$

- A)  $3x^2 - 3x^2 + c$
- B)  $\frac{\ln 3}{3x} \frac{4}{x^4} + c$
- C)  $\frac{\ln 3}{3x} \frac{2}{x^2} + c$
- D)  $\frac{\ln 3}{3x} + \frac{4}{x^4} + c$
- E)  $3x^2 \ln 3 + \frac{4}{x^4} + c$

6.  $f'(x) = 2$   
 $f'(2) = 5$   
 $f(2) = 10$   
 $= f(1) - f(-1) = ?$

- A) 7
- B) 5
- C) 2
- D) 1
- E) -3

5.  $\int (x-1) \cdot f(x) dx = x^2 - 2x = f(x) = ?$

- A) 2
- B)  $3x + 3$
- C)  $x^2 - x$
- D)  $3x^2 - x$
- E)  $x^2 + x$

12.  $\int 5 \tan x \cdot \sec^2 x \, dx = ?$

- A)  $\frac{5 \tan x}{5} + c$
- B)  $\frac{5}{5 \tan x} + c$
- C)  $\frac{\ln 5}{\tan x} + c$
- D)  $5 \tan x + c$
- E)  $\frac{\ln 5}{5 \tan x} + c$

11.  $\int (3x^2 + 1)^4 \cdot 6x \cdot dx = ?$

- A)  $\frac{6x}{(3x^2 + 1)^5} + c$
- B)  $\frac{5}{(3x^2 + 1)^5} + c$
- C)  $\frac{4}{(3x^2 + 1)^4} + c$
- D)  $(3x^2 + 1)^4 + c$
- E)  $6x \cdot (3x^2 + 1)^5 + c$

10.  $\int \frac{1+x^2}{1+a^2} dx = ?$

- A)  $x + a^2 x + \tan x + c$
- B)  $(1+x^2)(1+a^2) + c$
- C)  $(1+a^2) \arctan x + c$
- D)  $(1+a^2) \operatorname{arccot} x + c$
- E)  $x + c$

9.  $\int (1 - 4x^3 - 2e^x) dx = ?$

- A)  $x - 2x^4 - 2e^x + c$
- B)  $2x - x^4 - 2e^x + c$
- C)  $x - x^4 - 2e^x + c$
- D)  $x - x^4 + 2e^x + c$
- E)  $x + x^3 + 2e^x + c$





13.  $\int \frac{\sqrt{9-x^2}}{dx} = ?$

- A)  $\frac{\sqrt{1-x^2}}{1} + c$   
 B)  $\arcsin x + c$   
 C)  $\arcsin\left(\frac{x}{3}\right) + c$   
 D)  $\arccos\left(\frac{x}{3}\right) + c$   
 E)  $\arcsin\left(\frac{x}{3}\right) + c$

14.  $\int \tan^2 x \, dx = ?$

- A)  $x \cdot \tan x + c$   
 B)  $\tan x + x + c$   
 C)  $1 - \arctan x + c$   
 D)  $\tan x - x + c$   
 E)  $\tan x + c$

15.  $\begin{cases} x+y=5 \\ y+z=12 \\ x+z=3 \end{cases} = x \cdot (y-z) = ?$

- A) -4 B) 0 C) 4 D) 8 E) 12

16.  $5^x = 3 = \sqrt{\frac{1}{25^{x-1}}} = ?$

- A) -4 B) 0 C) 4 D) 8 E)  $\frac{3}{5}$

20.  $x^2 + x - 3 = 0$

a: One of the roots of the equation  
 denklemnin köklerinden biri a dir.

$= (a-1) \cdot a \cdot (a+1) \cdot (a+2) = ?$

- A) -6 B) -3 C) 3 D) 6 E) 8

19.  $P(x)$ , pozitif baş katsayılı bir polinomdur.  
 $P(x)$ , is a positive primer polynomial.

$P(P(x)) = 4x - 6 \Rightarrow P(5) = ?$

- A) 5 B) 6 C) 7 D) 8 E) 9

18.  $\frac{(a-b+1)^2 - (a+b-1)^2}{a \cdot b - a} = ?$

- A) -4 B) -4a C) -a D) a-b E) a-b+4

17.  $a < 0$  ve  $-1 < \frac{a+b}{a} < 0$

eşitsizlikleri veriliyor. / inequalities are given.

I.  $a \cdot b < 0$

II.  $a^2 + b^2 > 1$

III.  $|a+b| < |a-b|$

İfadelerinden hangileri kesinlikle doğrudur ?  
 which of the statements are absolutely true?

- A) I B) II C) I ve II D) I ve III E) II ve III

21. f ile g fonksiyonları / f and g are functions.

$$f(x) = x - 2 \text{ ve } g(x) = -x + 1$$

$$(f \circ g)(a) = (g \circ f)(a)$$

a kaçtır ? / What is a?

- A) -2 B)  $-\frac{1}{2}$  C) -1 D)  $\frac{1}{2}$  E) 2

22.  $\log_2 a + \log_2 b = 2$ ,  $a - b = 3 \Rightarrow a + b = ?$

- A) 3 B) 4 C) 5 D) 6 E) 7

23.  $z = 8i$  karmaşık sayısının küpküklerinden bir aşağıdakilerden hangisidir ?

$$\text{number } z = 8i ?$$

Which of the following is the cube roots of the complex

- A)  $2 \cdot \text{cis} 270^\circ$  B)  $2 \cdot \text{cis} 240^\circ$  C)  $2 \cdot \text{cis} 120^\circ$

$$D) 2 \cdot \text{cis} 90^\circ$$

$$E) \text{cis} 150^\circ$$

24.  $\cos 40^\circ + \cos 80^\circ - \cos 160^\circ = ?$

- A) 0 B)  $\sin 20^\circ$  C) 1

$$E) 2 \cos 20^\circ$$

$$D) \cos 40^\circ$$

26.  $F(x, y) = \ln(x^2 + y^2) = 0 \Rightarrow F(2, 3) = ?$

- A)  $\frac{4}{9}$  B) 2 C)  $\frac{9}{4}$  D)  $-\frac{1}{2}$  E)  $-\frac{3}{2}$

25.  $f(x) = \begin{cases} x^2 - 4 & , x < -2 \\ a & , x = -2 \\ \log_2(x+b) & , x > -2 \end{cases}$

fonsiyonu  $x = -2$  noktasında sürekli ise  $a + b$  kaçtır ?  
If the function is continuous at the point  $x = -2$ , what is  $a + b$ ?

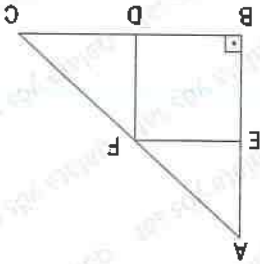
- A) 3 B) 18 C) 24 D) 20 E) 22

Yukarıdaki şekilde BDFE dikdörtgeninin alanının en büyük değeri kaçtır ?

What is the largest value of the area of the BDFE

rectangle in the figure above?

- A) 30 B) 15 C) 20 D) 16 E) 24



28.  $y = \frac{x}{4}$  eğrisinin orijine olan en yakın noktasının uzaklığı kaç birmidir ?  
What is the distance of the closest point of the curve  $y = \frac{x}{4}$  to the origin?

- A) 1 B)  $\sqrt{2}$  C)  $\sqrt{3}$  D)  $3\sqrt{2}$  E)  $2\sqrt{2}$

29.  $f^{-1}(a) = 3, (f^{-1})'(a) = \frac{5}{3}$

$\Rightarrow f'(3) = ?$

- A)  $\frac{3}{5}$  B) 3 C) 5 D) 1 E) 0

30.  $f(x) = \tan x$  fonksiyonun  $x = a$  noktasındaki türevi asğıdakiilerden hangisi ile ifade edilir ?

The derivative of the function  $f(x) = \tan x$  at the point  $x = a$  is expressed by which of the following?

- A)  $\lim_{x \rightarrow a} \frac{\tan x - \tan a}{x - a}$   
 B)  $\lim_{x \rightarrow a} \frac{\tan x + \tan a}{x}$   
 C)  $\lim_{x \rightarrow a} \frac{\tan x + \tan a}{x + a}$   
 D)  $\lim_{x \rightarrow 0} \frac{\tan h - \tan a}{h}$   
 E)  $\lim_{x \rightarrow 0} \frac{\tan(x+h) + \tan a}{h}$

Geometri Geometry

Point A is in the 3rd area in the analytical plane, where is point B?

- A) I. B) II. C) III. D) IV. E) origin

$\Rightarrow B(m^2 + n, m - n)$  hangi bölgededir ?

1.  $A\left(\frac{m}{2n}, m^3 \cdot n^4\right)$  noktası analitik düzlemde III. bölgede

4.

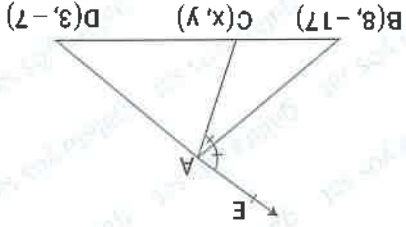
What is the product of C(x, y) coordinates?

C(x, y) koordinatları çarpımı kaçtır ?

[AB] exterior bisector

$5|AC| = 3|AD|$

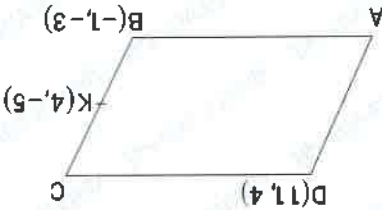
[AB] dış açıortay



- A) -44 B) 44 C) 66 D) 55 E) -55

3.

ABCD paralelkenar  
 $|KC| = 3|BK|$   
 $A(2, ?) = ?$



- A) (-9, 12) B) (9, 11) C) (9, -12) D) (-9, -12) E) (-9, 14)

2.

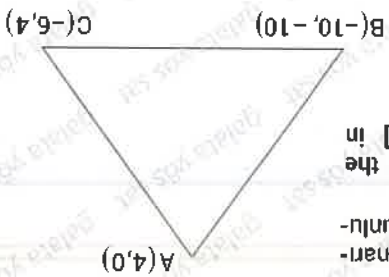
A(4, 8) B(8, -14) [AB]

doğru parçasının orta noktasının orijine uzaklığı nedir ?

What is the distance of the midpoint of the line segment [AB] to the origin?

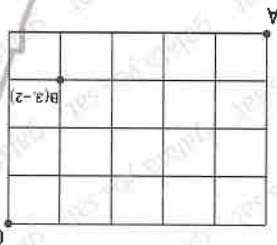
- A) 3 B)  $3\sqrt{5}$  C) 4 D)  $4\sqrt{5}$  E) 5

5. A(7, 24) noktasının x eksenine uzaklığı / distance to the x axis = ?  
orjine uzaklığı / distance to origin = ?
- A)  $\frac{5}{1}$  B)  $\frac{24}{7}$  C)  $\frac{24}{25}$  D)  $\frac{1}{25}$  E)  $\frac{7}{25}$



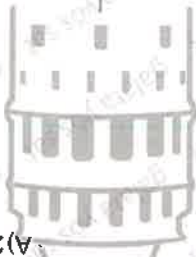
- A)  $2\sqrt{5}$  B)  $3\sqrt{5}$  C)  $4\sqrt{5}$  D) 15 E) 20

6. Yandaki analitik düzlemde birim kareler ayrılmıştır. A ve C noktalarının koordinatları ve C noktasının koordinatları birim kareler ayrılmıştır. A ve C koordinatları ayrılmıştır. The analytical plane is divided into unit squares. What is the sum of the coordinates of A and C points?



9. Analitik düzlemde ağırlık merkezinin koordinatları  $G(-3, 11)$  olan üçgenin köşe koordinatları toplamı kaçtır?  
What is the sum of the corner coordinates of the triangle with the coordinates of the center of gravity  $G(-3, 11)$  on the analytical plane?

- A) 24 B) 25 C) 26 D) 27 E) 28

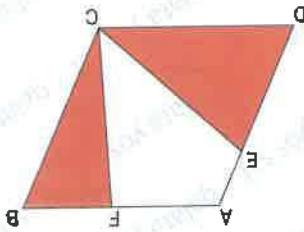


- A) 1 B) 2 C) 3 D) 4 E) 5

7. A(-4, 9) B(8, 25) C  $\in [AB]$   $|BC| = 3|AC|$  olduğuna göre C noktasının koordinatları toplamı kaçtır?  
what is the sum of the coordinates of the C point?
- A) 10 B) 11 C) 12 D) 13 E) 14
10.  $A(5, 1)$  B(4, 0) C(-3, a) olan üçgenin alanı ( $a > 0$ )  $A(\Delta ABC) = 14 \text{ cm}^2$  olduğuna göre a = ?
- A) 20 B) 21 C) 24 D) 25 E) 30

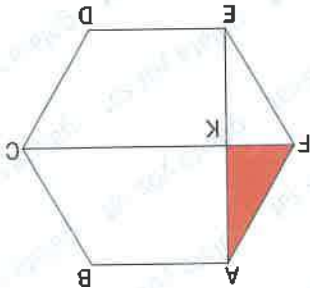


11. ABCD eşkenar dörtgen  
 $|AF| = 2|FB|$   
 $|DE| = 3|AE|$   
 $A(ABCD) = 48 \text{ cm}^2$   
 Taralı alan toplamı = ?  
 Shaded area sum = ?



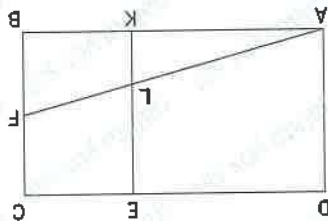
- A) 20 B) 26 C) 28 D) 30 E) 32

14. ABCDEF düzğün altigen  
 ABCDEF smooth hexagon  
 $[FC], [AE]$  köşegen  
 $[FC], [AE]$  diagonal  
 $A(\Delta KF) = 6\sqrt{3} \text{ br}^2$   
 $Gevre(AB CDEF) = ?$   
 What is the perimeter of the hexagon?



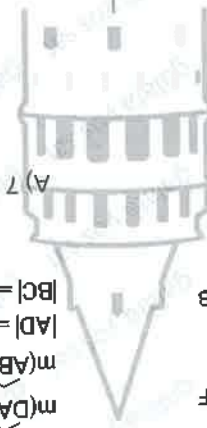
- A)  $10\sqrt{3}$  B)  $12\sqrt{3}$  C)  $20\sqrt{3}$  D)  $24\sqrt{3}$  E)  $30\sqrt{3}$

12. ABCD dikdörtgen  
 $[EK] \parallel [BC]$   
 $2|AK| = 3|BK|$   
 $|BF| = 5$   
 $|CF| = 4$   
 $|EL| = ?$



- A) 3 B) 4 C) 5 D) 6 E) 7

15. ABCD yamuk  
 $m(\widehat{DAB}) = 30^\circ$   
 $m(\widehat{ABC}) = 45^\circ$   
 $|AD| = 14$   
 $|BC| = ?$



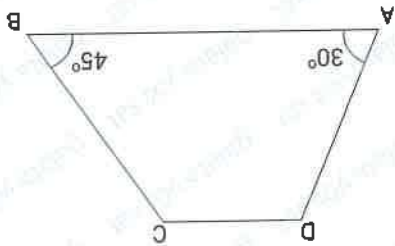
A) 7

- D)  $14\sqrt{2}$

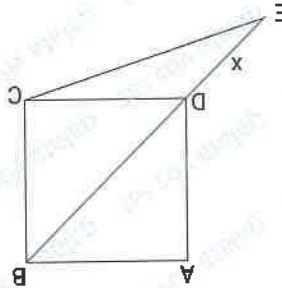
B)  $7\sqrt{2}$

C) 14

E) 16

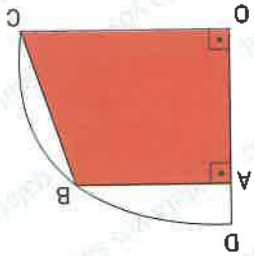


13. ABCD kare  
 $|BD| = |CE| = 6$   
 $|DE| = x = ?$



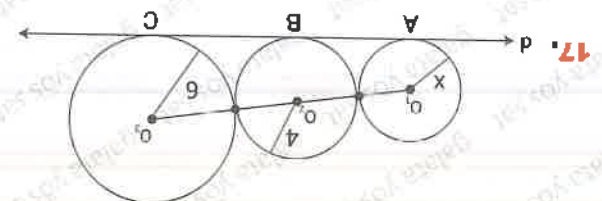
- A)  $3\sqrt{3} - 3$  B)  $\sqrt{3}$  C) 3 D)  $3\sqrt{3} + 3$  E)  $3\sqrt{3} + 6$

16. O: çeyrek çemberin merkezi  
 $|DA| = 1$   
 $|OC| = 5$   
 $A(ABCO) = ?$



- A) 14 B) 24 C) 18 D) 20 E) 16





Şekilde  $O_1, O_2, O_3$  merkezli çemberler birbirine ve doğruya teğet. In the figure, circles with centers  $O_1, O_2, O_3$  are tangent to each other and to the d line.

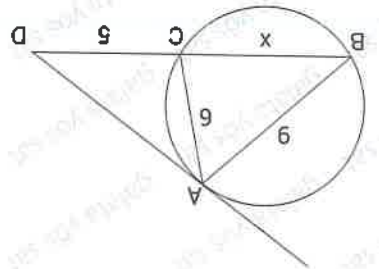
$$r_1 = x$$

$$r_2 = 4$$

$$r_3 = 6$$

$$\Rightarrow r_1 = x = ?$$

- A) 2 B)  $\frac{3}{8}$  C) 3 D)  $\frac{3}{16}$  E) 4

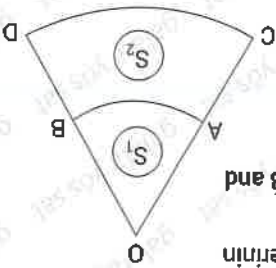


[DA çembere A noktasında teğettir.  $|BC| = x = ?$  DA is tangent to the circle at point A.

- A) 5 B)  $\frac{2}{15}$  C) 8 D)  $\frac{4}{25}$  E)  $\frac{4}{45}$

20.

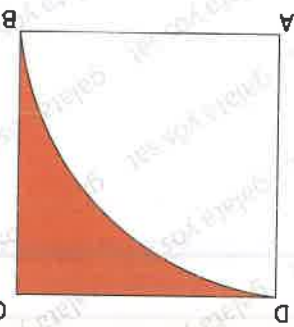
O: AB ve CD daire dilimlerinin ortak merkezi  
 O: Common center of AB and CD circle slices  
 $S_1 = S_2$  olduğuna göre  $\frac{|OA|}{|AC|} = ?$   
 A)  $\sqrt{2} - 1$   
 B)  $\sqrt{2}$   
 C)  $\sqrt{2} + 1$   
 D)  $\frac{3}{1}$   
 E)  $\frac{4}{1}$



- A) 36 B)  $36 - 9\pi$  C)  $36 - \frac{9\pi}{2}$  D)  $36 + 9\pi$  E)  $36\pi$

19.

ABCD karesinin içine A merkezli çeyrek çember yerleştirilmiştir. A quarter circle with center A is placed inside the ABCD square.  $\hat{C}(ABCD) = 24$  br / Perimeter olduğuna göre boyalı alan? Shaded area=?



C

# Başarıya Götüren



Mat	Problem Solving / Problem
Geo	Problem Solving / Problem
Mat	Problem Solving / Problem
Geo	Problem Solving / Problem
Mat	Problem Solving / Problem
Geo	Problem Solving / Problem

## KTS-25

Mat	Integral / Integral
Geo	3 Boyutlu Cisim / 3D Object
Geo	Doğru Analizi / Right Analytics
Mat	Integral / Integral
Geo	3 Boyutlu Cisim / 3D Object
Geo	Doğru Analizi / Right Analytics

Mat	Integral / Integral
Geo	Şekli Karşılaştırma / Shape Comparison
Mat	Turner / Derivative
Geo	Şekli Karşılaştırma / Shape Comparison
Mat	Turner / Derivative
Geo	Şekli Karşılaştırma / Shape Comparison

Mat	Logaritma Türleri / Logarithm, Induction
Geo	Dikdörtgen / Rectangular
Mat	Özet Tanımlı Fonksiyonlar / Custom Defined Functions
Geo	Dikdörtgen / Rectangular
Mat	Özet Tanımlı Fonksiyonlar / Custom Defined Functions
Geo	Dikdörtgen / Rectangular

Mat	Karmaşık Sayılar / Complex numbers
Geo	Yamuk / Trapezoid
Mat	Trigonometri / Trigonometry
Geo	Yamuk / Trapezoid
Mat	Trigonometri / Trigonometry
Geo	Yamuk / Trapezoid

Mat	Modüler Aritmetik / Modular Arithmetic
Geo	Küp Sayma / Tamamlama / Cube Counting and Completion
Mat	Polinom / Polynomial
Geo	Küp Sayma / Tamamlama / Cube Counting and Completion
Mat	Polinom / Polynomial
Geo	Küp Sayma / Tamamlama / Cube Counting and Completion

Mat	İki Denklemin Çarpımı ve Fonksiyonlar / Cartesian Product and Functions
Geo	Uçgenin Alanı / Area of Triangles
Mat	Kartezyen Çarpım ve Fonksiyonlar / Cartesian Product and Functions
Geo	Uçgenin Alanı / Area of Triangles
Mat	Kartezyen Çarpım ve Fonksiyonlar / Cartesian Product and Functions
Geo	Uçgenin Alanı / Area of Triangles

Mat	Doğal Sayılar / Natural numbers
Geo	Konverans / Medium
Mat	Sayılar / Numbers
Geo	Konverans / Medium
Mat	Sayılar / Numbers
Geo	Konverans / Medium

Mat	Basit Eşitsizlik ve Mutlak Değer / Simple Inequality and Absolute Value
Geo	Açıortay / Bisector
Mat	Çarpımın Aynası / Faktörizasyon / Legendre's Symmetry / Factorization
Geo	Açıortay / Bisector
Mat	Çarpımın Aynası / Faktörizasyon / Legendre's Symmetry / Factorization
Geo	Açıortay / Bisector

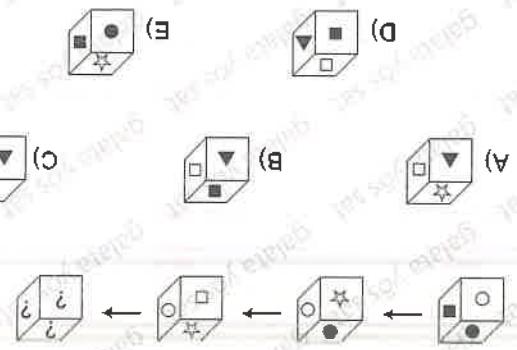
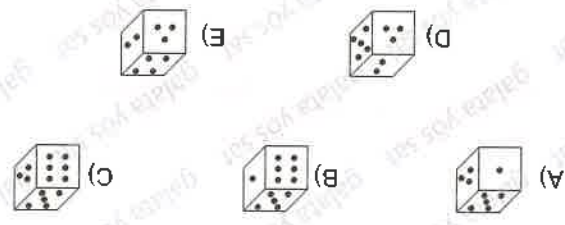
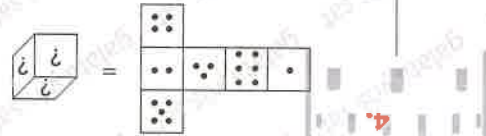
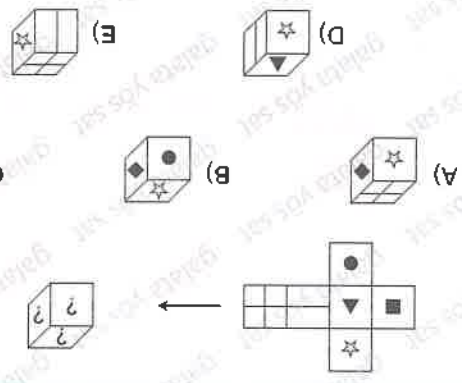
Mat	İki Denklemin Çarpımı ve Fonksiyonlar / Cartesian Product and Functions
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Geo	Uçgenin Alanı / Area of Triangles
Mat	İki Denklemin Çarpımı ve Fonksiyonlar / Cartesian Product and Functions
Geo	Uçgenin Alanı / Area of Triangles

Siyah	Mor	Purple	White
Black	Purple	Mor	White
	Sarı	Yellow	
	Kırmızı	Red	
	Mavi	Blue	

Yükarıdaki şekilde bir küpün açılımı verilmiştir. Buna göre aşağıda verilen yüzeylerin hangileri birbirine paraleldir ?

In the figure above, the unfolding of a cube is given. Accordingly, which of the following surfaces are parallel to each other?

- A) Beyaz-Mor  
White - Purple
- B) Sarı-Kırmızı  
Yellow - Red
- C) Siyah-Mavi  
Black - Blue
- D) Sarı-Mavi  
Yellow - Blue
- E) Siyah - Beyaz  
Black - White



3.



8.

A) 1, 3, 5, 6  
B) 1, 2, 6, 5  
C) 1, 5, 6, 4  
D) 3, 5, 6, 4  
E) 1, 2, 4, 5

6.

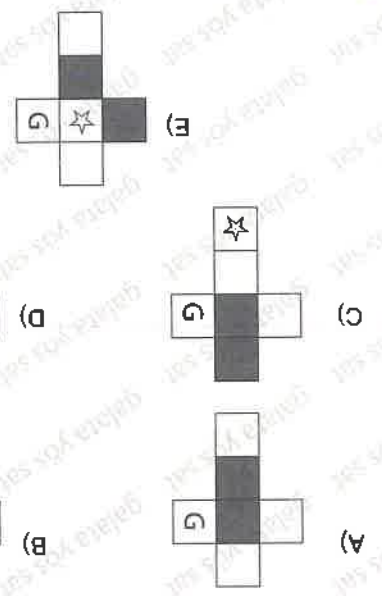
A) circle, square, triangle, diamond  
B) circle, square, triangle, diamond  
C) circle, square, triangle, diamond  
D) circle, square, triangle, diamond  
E) circle, square, triangle, diamond

7.

A) circle, square, triangle, diamond  
B) circle, square, triangle, diamond  
C) circle, square, triangle, diamond  
D) circle, square, triangle, diamond  
E) circle, square, triangle, diamond

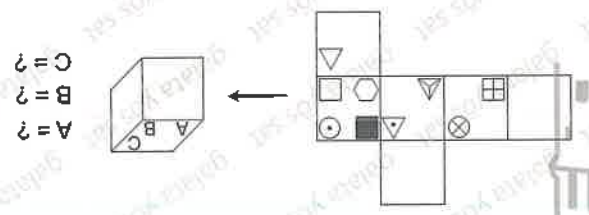
5.

A) circle, square, triangle, diamond  
B) circle, square, triangle, diamond  
C) circle, square, triangle, diamond  
D) circle, square, triangle, diamond  
E) circle, square, triangle, diamond

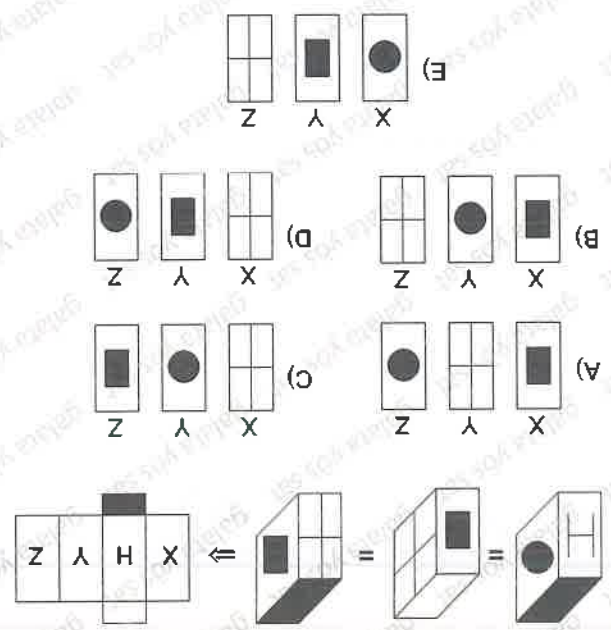


10.

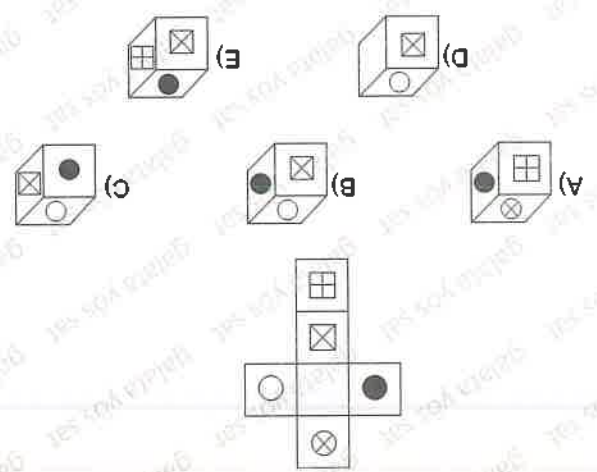
- A) ○ □ ○
- B) ■ ○ □
- C) ○ ■ □
- D) ○ □ ○
- E) ○ □ ■



A = ?  
B = ?  
C = ?

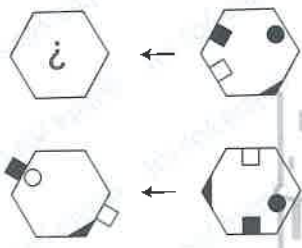
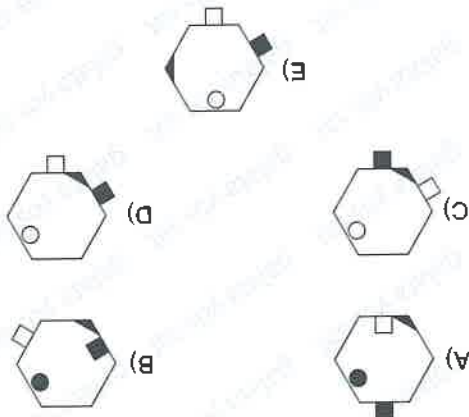


11.

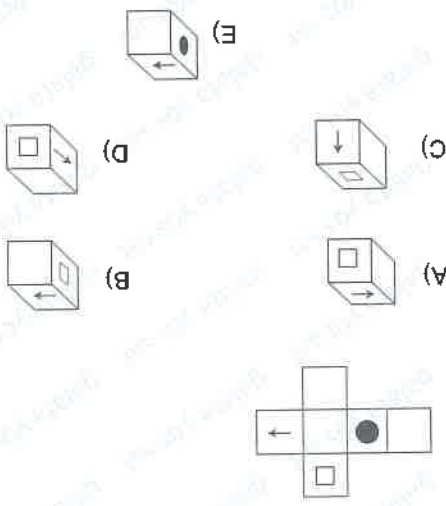


9.

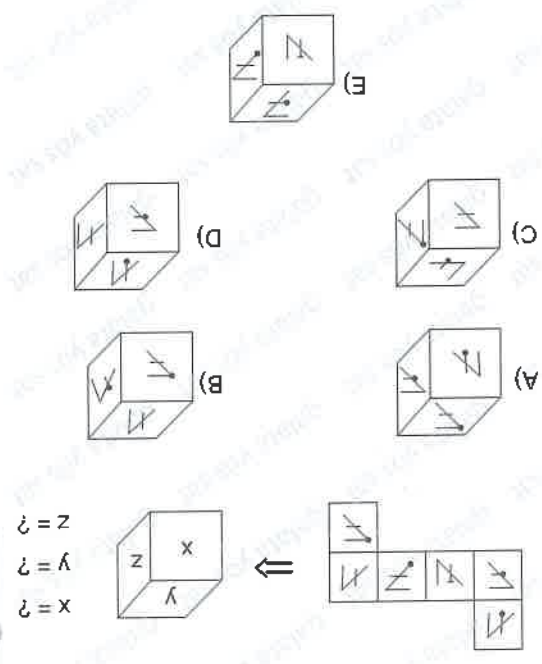




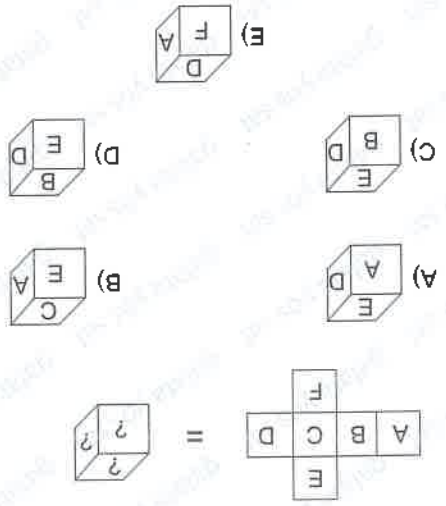
15.



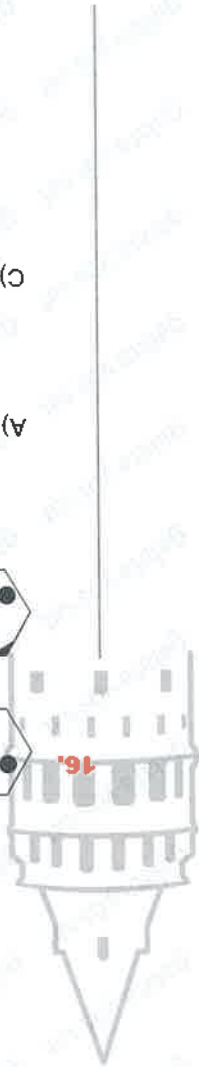
15.

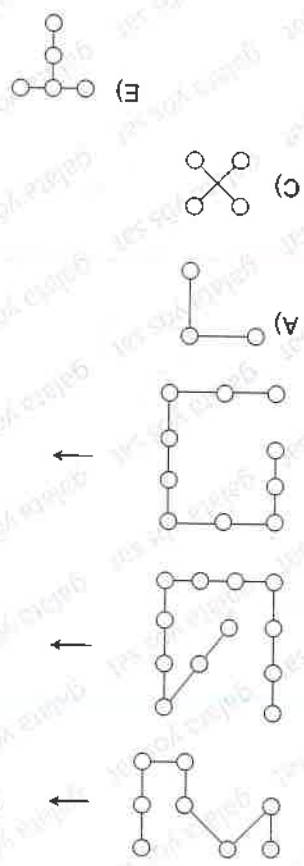


14.



13.



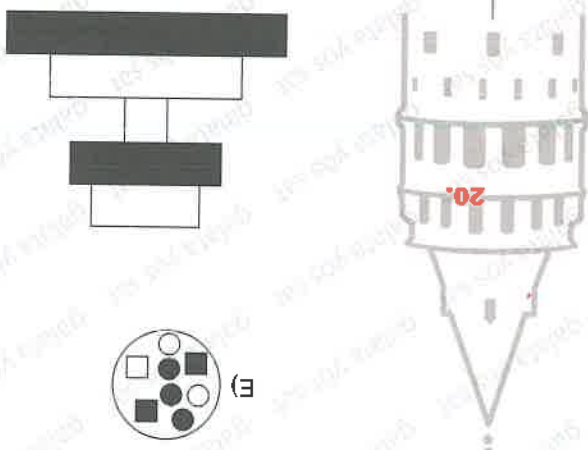


18.

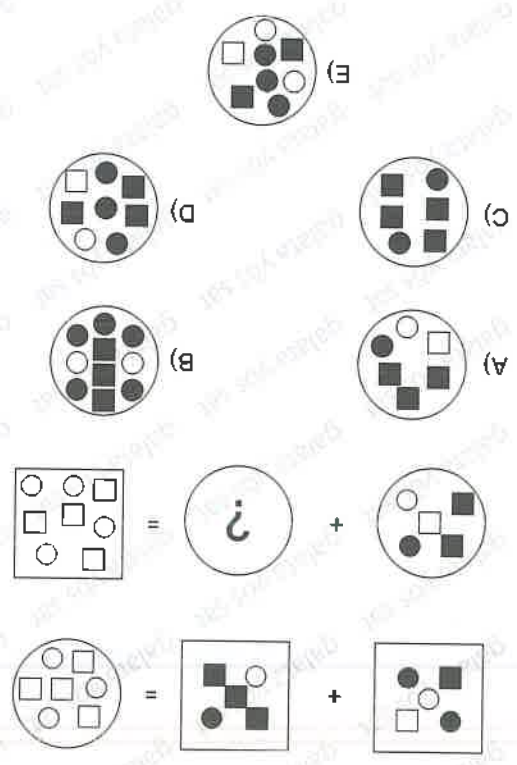
- A) LAKEPVE
- B) LAKEDVA
- C) JAKEDVA
- D) JAKEDVE
- E) JAKEDVE

17. CORONA → ANOBOS  
 EVDKAL → ?

Slindri pargalarından oluşan seklin üstten görünümü aşağıdakilerden hangisidir ?  
 Which of the following is the top view of the figure consisting of cylinder parts?



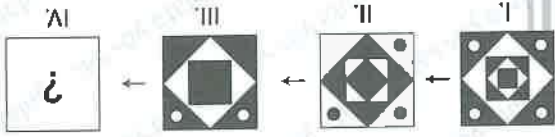
19.



Yukarıdaki şekil dizisi bir kurala göre dizilmiştir. göre, 9. şekil dizisi aşağıdakilerden hangisidir?  
Since the sequence of figures is arranged according to a rule, which of the following is the 9th figure?

23. 1) ★ ■ ● ▲ ▼ ▽ ◆ 2) ▲ ★ ■ ● ▲ ▼ ▽ ◆ 3) ◆ ▽ ▲ ★ ■ ● ▲ ▼ ▽ ◆

- A) ◆ ▽ ▲ ★ ■ ● ▲ ▼ ▽ ◆  
B) ★ ▲ ◆ ▽ ● ■ ★ ▽ ◆ ▽  
C) ★ ■ ● ▲ ▼ ▽ ◆  
D) ■ ★ ▽ ◆ ▽ ● ■ ★ ▽ ◆ ▽  
E) ▽ ◆ ▽ ▲ ★ ■ ● ▲ ▼ ▽ ◆



IV. şekil aşağıdakilerden hangisidir?

- A) B) C) D) E)

21. Aşağıdakilerden hangisi diğerlerinden farklıdır?  
Which of the following is different from the others?

- A) B) C) D) E)

22. Aşağıdakilerden hangisi diğerlerinden farklıdır?  
Which of the following is different from the others?

- A) B) C) D) E)

25.

E	E	S	S
R	R	K	S
R	R	K	S
K	K	K	S
E	E	S	S

Yukarıdaki tablo belirli bir kurala göre hazırlanmıştır. Tablodakırala uymayan şeklin yerine gelecek şekil aşağıdakilerden hangisidir?

The table above has been prepared according to a rule. Which of the following is the figure that will replace the figure that does not obey the rule in the table?

- A)  a
- B)  m
- C)  k
- D)  x
- E)  s

26.

1	M	49	343
4			
K	27	81	243
16			
25	32	37	L

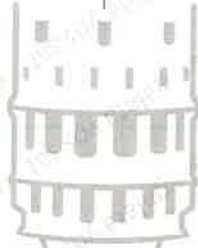
$$= \frac{K+L}{M} = ?$$

- A) 12 B) 10 C) 8 D) 7 E) 6

29.

$$\begin{aligned} AT &= R \\ LK &= S \\ RI &= L \\ ATIK &= ? \end{aligned}$$

- A) R B) S C) L D) A E) K

28.  $A_2 C_3 E_5 \rightarrow D_1 F_3 H_7 \rightarrow F_6 J_2 L_8 \rightarrow ?$ 

- A)  $J_1 P_2 S_9$  B)  $J_8 P_3 S_{11}$  C)  $J_9 P_2 S_{11}$   
D)  $J_7 R_3 T_9$  E)  $J_8 R_3 T_{11}$

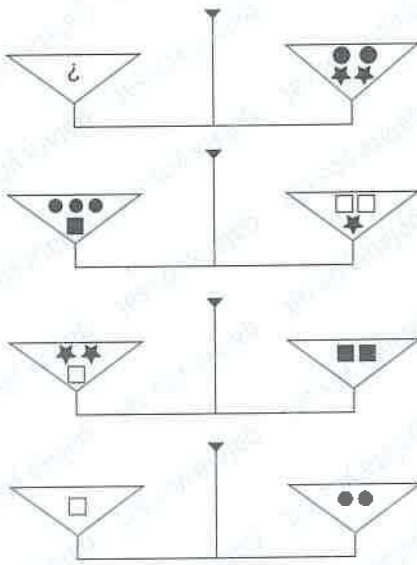
- A) 17 B) 25 C) 32 D) 43 E) 45

Yukarıdaki tabloda soru işaretinin yerine hangi sayı gelmelidir?  
Which number should replace the question mark in the table above?

15	43	?	4
13	15	24	3
11	10	34	4
9	19	26	5

27.

30.



- A) □ □ □
- B) ■ ■ □
- C) ★ □ □
- D) ■ ■ ■
- E) ■ ■ ■

1.  $\int_3^{-2} (x^2 + x - 2) dx = ?$

- A)  $\frac{6}{25}$
- B)  $\frac{2}{9}$
- C)  $\frac{3}{13}$
- D) 4
- E) 5

2.  $f(x) = \begin{cases} x+2, & x \leq 2 \\ -x, & x > 2 \end{cases} \Rightarrow \int_3^1 f(x) dx = ?$

- A) 1
- B) 2
- C) 4
- D) 6
- E) 8

3.

$\int_{\frac{\pi}{2}}^0 (\sin x - \cos x) dx = ?$

- A) -2
- B) -1
- C) 0
- D) 1
- E) 2

4.  $f, [a, b]$  aralığında sürekli ve türevlenebilir bir fonksiyon olmak üzere,  $f$  being a continuous and differentiable function in the interval  $[a, b]$ .

$\int_b^a f(x) \cdot f'(x) dx = ?$

- A)  $f(b) - f(a)$
- B)  $[f(b)]^2 - [f(a)]^2$
- C)  $[f(b)]^2 + [f(a)]^2$
- D)  $f(b) + f(a)$
- E)  $[f(b)]^2 - [f(a)]^2$

5.

$\int_2^1 \frac{e^x}{x^2} dx$  integrali nedir?

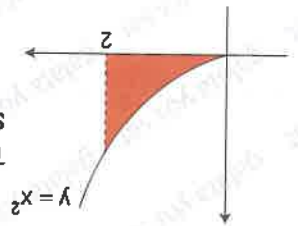
what integral is obtained if  $\frac{1}{x} = u$  is transformed in  $\int_2^1 \frac{e^x}{x^2} dx$  integralinde  $\frac{1}{x} = u$  dönüşümü yapılırsa hangi integral elde edilir?

- A)  $\int_1^2 \ln u \cdot u du$
- B)  $\int_1^2 \frac{e^u}{2} du$
- C)  $\int_1^2 e^u du$
- D)  $-\int_1^2 e^u du$
- E)  $\int_1^2 \ln u du$



6.  $F(x) = \int_x^2 (1+4) dt = F'(x) - ?$

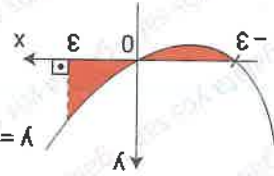
- A)  $2x^2 + 7x - 2$   
 B)  $2x^3 + 7x - 4$   
 C)  $2x^3 + 5x - 4$   
 D)  $x^3 + 5x - 4$   
 E)  $2x^3 + 3x - 4$



7. Taralı bölgenin alanı nedir ?  
 Shaded area = ?

- A)  $\frac{3}{5}$   
 B)  $\frac{3}{8}$   
 C)  $\frac{3}{7}$   
 D)  $\frac{3}{1}$   
 E) 3

8. Taralı bölgenin alanı kaçtır ?  
 Shaded area = ?



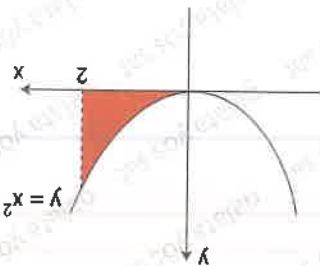
- A) 30  
 B) 27  
 C) 45  
 D) 21  
 E) 18

9.  $y = 2x^2 - x + 2$  eğrisi ile  $y = 3x + 2$  doğrusu arasında kalan kapalı bölgenin alanı kaçtır ?

What is the area of the closed region between the  $y = 2x^2 - x + 2$  curve and the line  $y = 3x + 2$  ?

- A)  $\frac{3}{4}$   
 B)  $\frac{5}{3}$   
 C) 2  
 D)  $\frac{7}{3}$   
 E)  $\frac{8}{3}$

10.



yukarıdaki şekilde verilen taralı bölgenin x eksenine etrafında 360° döndürülmesiyle oluşan cismin hacmi kaç birim küptür ?  
 What is the volume of the object formed by rotating the shaded area given in the figure above 360 degrees around the x-axis?

- A)  $\frac{5}{26\pi}$   
 B)  $\frac{5}{28\pi}$   
 C)  $10\pi$   
 D)  $\frac{5}{32\pi}$   
 E)  $5\pi$

11.

$y = x^2$  eğrisi ile  $y = x$  doğrusu arasında kalan kapalı bölgenin x eksenine etrafında 360° döndürülmesiyle oluşan cismin hacmi kaç birim küptür ?  
 What is the volume of the solid formed by rotating the closed region between the  $y = x^2$  curve and the  $y = x$  line 360 degrees around the x-axis?

- A)  $\frac{3}{2\pi}$   
 B)  $\frac{2}{\pi}$   
 C)  $\frac{3}{\pi}$   
 D)  $\frac{4}{\pi}$   
 E)  $\frac{15}{2\pi}$

12.

$$\frac{1}{\frac{1}{79} + \frac{1}{2} + \frac{1}{3} - \frac{1}{6}} = ?$$

- A)  $\frac{79}{2}$   
 B)  $\frac{7}{1}$   
 C)  $\frac{17}{7}$   
 D)  $\frac{7}{15}$   
 E)  $\frac{15}{7}$

13.

$x+1, y-2, 2z+3$  sayıları küçükten büyüğe ardışık üç doğal sayıdır. The numbers  $x, y, z$  are three consecutive natural numbers smallest to largest.  
 $x+y = 144$  olduğuna göre,  $z$  kaçtır ? / What is  $z$  ?

- A) 29  
 B) 33  
 C) 35  
 D) 38  
 E) 41

14.  $f(x) = (x^2 + 1)(x^4 + 1)(x^8 + 1)$

$= 3 \cdot f(2) = ?$

A)  $2^{16} + 2^8$

B)  $2^8 + 1$

C)  $2^8 - 1$

D)  $2^{16} - 1$

E)  $2^{16} + 1$

15.  $A = \{-2, 8\}$  ve  $B = \{3, 12\}$

$= A \cap B = ?$

A)  $(-\infty, -2)$

B)  $(-2, 3)$

C)  $(3, 8)$

D)  $(8, 12)$

E)  $[8, 12)$

16.  $\frac{a\sqrt{b} + b\sqrt{a}}{\sqrt{a} + \sqrt{b}} = 2, a - b = 3$

$\Rightarrow a^2 + b^2 = ?$

A) 17 B) 13 C) 8 D) 5 E) 1

17.  $\sqrt{-1} = i, z = 5 - 12i$

$\Rightarrow \sqrt{z}$  hangisi olabilir? / Which one could  $\sqrt{z}$  be?

A)  $3 - 2i$

B)  $3 + 2i$

C)  $-3 - 2i$

D)  $2 + 3i$

E)  $-1 - 3$

18.  $\log x = 8 \Rightarrow \log \sqrt[4]{x} + \log \sqrt{x} = ?$

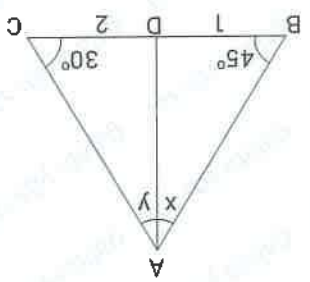
A) 10

B) 8

C) 6

D) 4

E) 2



A)  $\frac{4}{\sqrt{2}}$

B)  $\frac{\sqrt{2}}{2}$

C)  $\sqrt{2}$

D)  $2\sqrt{2}$

E)  $4\sqrt{2}$

$\frac{\sin x}{\sin y} = ?$

20.  $\log_{\frac{1}{3}} x < \log_{\frac{1}{3}} (4 - x)$

$\log_6 (2x - 1) < \log_6 (x + 5)$

esizlik sistemini saglayan kac tane x tam sayi vardir? How many integers x are there that satisfy the system of inequality?

A) 4

B) 3

C) 2

D) 1

E) 0

21.  $0 < x < \frac{\pi}{4}, 0 < y < \frac{\pi}{2}$

$\Rightarrow \lim_{x \rightarrow \frac{\pi}{4}} \frac{\tan(2x + y) + \cot(4x + y)}{\sin(x + \frac{\pi}{3})} = ?$

A)  $-2\cot y$

B) 1

C)  $-\cot y$

D) 2tany

E) 0

22.  $f$  türevlenebilir bir fonksiyon olsun,

Let  $f$  be a differentiable function,

$$f(x+y) - f(x) + f(y) + 3xy$$

$$f'(0) = 2 = f'(2) = ?$$

- A) 2 B) 5 C) 6 D) 7 E) 8

23.  $y = 2u+1$ ,  $u = t^2 + t$ ,  $t = x^3 - x$

$$\Rightarrow \frac{dy}{dx} \Big|_{x=-1} = ?$$

- A) 8 B) 4 C) 2 D) 1 E) 0

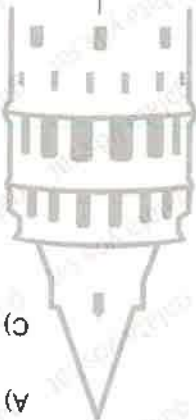
24.  $\int \frac{x^2 - 4x}{x - 2} dx = ?$

A)  $\ln \sqrt{\frac{x-4}{x}} + c$

B)  $\ln(\sqrt{x^2 - 4x}) + c$

D)  $\ln|x+4| + c$

E)  $x - 2 + \ln|x-4| + c$



27.  $\int x \cdot e^{2x} dx = ?$

A)  $\frac{1}{4} e^x (2x+1) + c$

B)  $e^{2x} (2x-1) + c$

D)  $\frac{7}{1} e^{2x} (2x-1) + c$

E)  $\frac{1}{4} e^{2x} (2x-1) + c$

26.  $\int u dv = ?$

A)  $u \cdot dv - \int u du$

B)  $u \cdot v - \int u dv$

C)  $u \cdot v - \int v du$

D)  $u \cdot v + \int v du$

E)  $u \cdot v - \int du$

C)  $3 \int \cos^2 y dy$

D)  $\frac{3}{1} \int \sin^2 y dy$

A)  $\frac{3}{1} \int \cos dy$

B)  $\frac{3}{1} \int \frac{dy}{\cos y}$

E)  $\int \frac{3 \cdot \sin y}{\cos^2 y} dy$

25.  $\int \frac{dx}{(1+9x^2)\sqrt{1+9x^2}}$  integralinde  $3x = \tan y$  dönüşümü uygulandıgında asagıdaki integrallerden hangisi elde edilir ?

When the transform is applied, which of the following integrals are obtained?

28.  $\int \frac{1}{x^2 - x - 6} dx = ?$

- A)  $\frac{5}{1} \ln \left| \frac{x-3}{x+1} \right| + c$
- B)  $\frac{5}{1} \ln \left| \frac{x+3}{x-2} \right| + c$
- C)  $5 \ln \left| \frac{x-3}{x+3} \right| + c$
- D)  $5 \ln \left| \frac{x+3}{x+3} \right| + c$
- E)  $\frac{5}{1} \ln \left| \frac{x-3}{x+2} \right| + c$

29.  $\int \frac{x^3 + 1}{x^3 + 3} dx = ?$

- A)  $\frac{3}{x^3} + \frac{2}{x^2} + x - 2 \ln |x+1| + c$
- B)  $\frac{3}{x^3} + \frac{2}{x^2} + x + \ln |x+1| + c$
- C)  $x^2 - x^2 + x + 2 \ln |x+1| + c$
- D)  $\frac{3}{x^3} - \frac{2}{x^2} + x + 2 \ln |x+1| + c$
- E)  $\frac{3}{x^3} - \frac{2}{x^2} + 2x - \ln |x+1| + c$

30.  $\int \cos 2x \cdot \sin 4x dx = ?$

- A)  $\frac{1}{\sin 6x} - \frac{4}{\sin 2x} + c$
- B)  $\frac{1}{\cos 7x} - \frac{4}{\cos x} + c$
- C)  $\frac{1}{\cos 6x} - \frac{2}{\cos 2x} + c$
- D)  $-\frac{1}{\cos 6x} - \frac{4}{\cos 2x} + c$
- E)  $\cos 6x - \cos 2x + c$

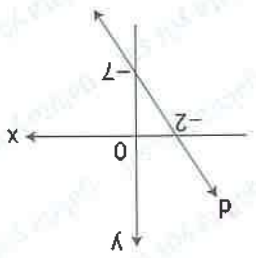
2.

A(-3, 4), B(7, 3) noktalarından geçen doğrunun eğimi nedir?  
 What is the slope of the line passing through the points  
 A(-3,4), B(7, 3)?

- A)  $\frac{1}{10}$
- B)  $-\frac{1}{10}$
- C)  $\frac{5}{3}$
- D)  $-\frac{5}{3}$
- E)  $\frac{5}{1}$

3.

d doğrusunun denklemini nedir?  
 What is the equation of the  
 line d?



- A)  $7x - 2y + 14 = 0$
- B)  $7x - 2y - 14 = 0$
- C)  $-7x - 2y - 14 = 0$
- D)  $-7x - 2y + 14 = 0$
- E)  $2x - 2y + 14 = 0$

6.  $4x - 12y + 48 = 0$   
doğrusu ve eksenler arasında kalan bölgenin alanı nedir?  
What is the area between the line  $4x - 12y + 48 = 0$  and the axes?

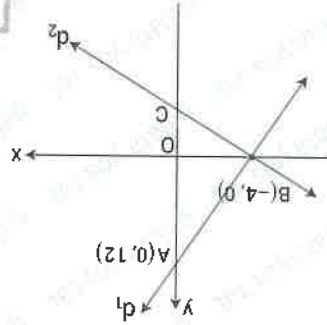
- A) 20 B) 22 C) 24 D) 26 E) 28

9.  $A(-4, -8)$  noktasından geçen ve  $3x - 5y + 21 = 0$  doğrusuna dik olan doğrunun denklemi nedir?  
What is the equation for the line passing through the point  $A(-4, -8)$  and perpendicular to the line  $3x - 5y + 21 = 0$ ?

- A)  $5x + 3y - 44 = 0$   
B)  $5x - 3y + 44 = 0$   
C)  $-5x - 3y + 44 = 0$   
D)  $5x + 3y + 44 = 0$   
E)  $3x + 3y - 44 = 0$

8.  $2y - 5x + 4 = 0$  doğrusuna paralel olan ve  $A(-2, 3)$  noktasından geçen doğru denklemi nedir?  
What is the equation of the line parallel to the line  $2y - 5x + 4 = 0$  and passing through the point  $A(-2, 3)$ ?

- A)  $5x - 2y + 16 = 0$   
B)  $5x - 2y + 19 = 0$   
C)  $-5x - 2y - 19 = 0$   
D)  $2y - 5x + 19 = 0$   
E)  $2y - 5x + 16 = 0$



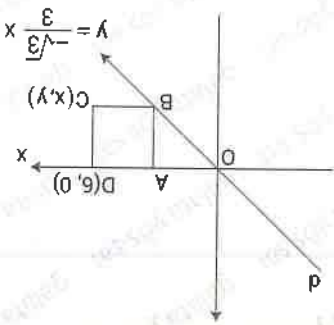
5.  $|4A| = 3|BC|$   
 $d_2$  doğrusunun denklemi nedir?  
What is the equation of the line  $d_2$ ?

- A)  $4x + y + 16 = 0$   
B)  $4x - y - 16 = 0$   
C)  $4x + y - 16 = 0$   
D)  $-4x - y + 16 = 0$   
E)  $4y + x - 16 = 0$

4.  $A(3, 4)$   $B(-1, k+1)$   $C(4, -1)$  noktaları aynı doğru üzerinde olduğuna göre  $k = ?$   
Since the points  $A(3, 4)$   $B(-1, k+1)$   $C(4, -1)$  are on the same line,  $k = ?$

- A) 20 B) 21 C) 22 D) 23 E) 24

7. ABCD kare  
 $D(6, 0)$   
 $C(x, y) = ?$

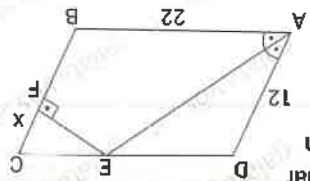


- A)  $(6, 3 - 3\sqrt{3})$   
B)  $(6, 3\sqrt{3} + 3)$   
C)  $(-6, 3\sqrt{3} - 3)$   
D)  $(-6, 3\sqrt{3} + 3)$   
E)  $(3\sqrt{3} - 3, 6)$





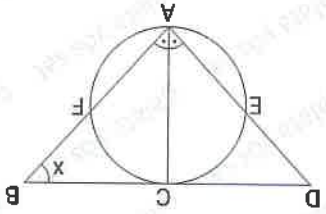
16. ABCD bir paralelkenar



- ABCD paralelkenar
- $m(\widehat{DAE}) = m(\widehat{EAB})$
- $[EF] \perp [BC]$
- $|AD| = 12$
- $|EF| = 8$
- $|AB| = 22$
- $x = ?$

- A) 6
- B) 7
- C) 8
- D) 9
- E) 10

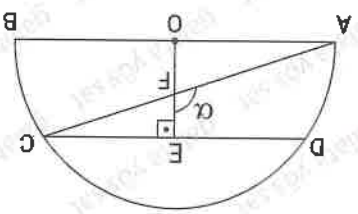
17. C: teğet noktası



- C: teğet noktası
- [AC]: açıortay
- [AC]: bisector
- $|AE| = |AF|$
- $m(\widehat{ECF}) = 220^\circ$
- $x = ?$

- A) 35
- B) 40
- C) 55
- D) 65
- E) 70

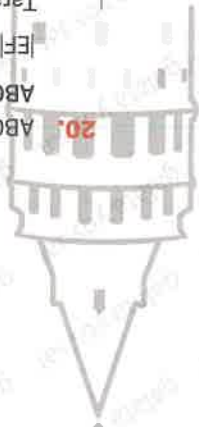
18. O: çemberin merkezi



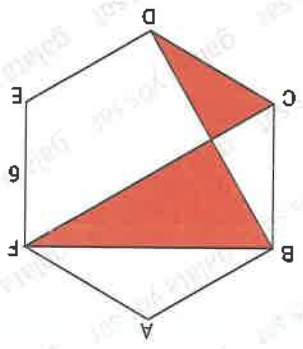
- O: çemberin merkezi
- $[DC] \parallel [AB]$
- $|OB| = 2|EC|$
- $[CD] \perp [OE]$
- $\alpha = ?$

- A) 100
- B) 110
- C) 120
- D) 140
- E) 150

20.



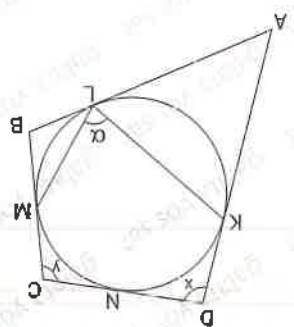
ABCD, düzgen altıgen  
 ABCDEF, düzgen altıgen  
 $|EF| = 6$   
 Taralı alan = ?  
 Shaded area = ?



- A)  $18\sqrt{3}$
- B)  $20\sqrt{3}$
- C)  $21\sqrt{3}$
- D)  $24\sqrt{3}$
- E)  $36\sqrt{3}$

19.

ABCD; teğetler dörtgeni  
 ABCD; tangential quadrilateral



- $m(\widehat{ADC}) = y$
- $m(\widehat{BCD}) = x$
- $m(\widehat{KLM}) = \alpha$ ,  $n$  in  $x$  ve  $y$
- türünden değeri nedir ?
- What is  $\alpha$  in terms of  $x$  and  $y$ ?

- A)  $90 - \frac{x+y}{2}$
- B)  $90 + \frac{x+y}{2}$
- C)  $180 - \frac{x+y}{2}$
- D)  $180 + \frac{x+y}{2}$
- E)  $180 + x + y$

# Başarıya Götüren



Mat	Problem Solving / Problem	Mat	Problem Solving / Problem
Geo	Problem Solving / Problem	Geo	Problem Solving / Problem
Mat	Problem Solving / Problem	Mat	Problem Solving / Problem

Mat	Integral / Integral	Mat	Permutation / Permutation
IQ	3 Boyutlu Cisim / 3D Object	IQ	Kesme - Kaldırım / Cutting - Folding
Geo	Doğru Analizi / Right Analytics	Geo	Simetri / Symmetry

Mat	Integral / Integral	Mat	Türev / Derivative
IQ	Şekli Karşılaştırma	IQ	Farklı Olan Bulma
Geo	Analitik Geometri / Analytical geometry	Geo	Dairede Alan / Area in a circle

Mat	Logaritma Tanımlama	Mat	Özel Tanım Fonksiyonları
IQ	Şekli İlgili Tablo	IQ	Şekli İlgili Tablo
Geo	Dikdörtgen / Rectangular	Geo	Kare / Square

Mat	Karmaşık Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry
IQ	Şekli İlgili Tanımlama	IQ	KLM
Geo	Yamuk / Trapezoid	Geo	Çokgen Dörtgen / Rhombus

Mat	Modüler Aritmetik	Mat	Polinom / Polynomial
IQ	Küp Sayma Tanımlama	IQ	Çizimler / Graphics
Geo	Çokgenler / Polygons	Geo	Dörtgen / Quadrilateral

Mat	İki Üzerine İşlem / Operation	Mat	Kurulan Çarpım ve Fonksiyonlar
IQ	Denklemler Eşlemler / Equation Matching	IQ	Eşlemler / Matching
Geo	Üçgenin Aç Köşer Eşliği	Geo	Üçgenin Alan / Area of Triangles

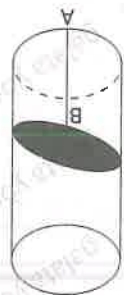
Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers
IQ	Sayı Başlıklar / Number Relations	IQ	Tablolar / Tables
Geo	Kesirler / Medium	Geo	Üçgenin Benzerlik

Mat	Basit Eşitlik ve Mutlak Değer	Mat	Çarpımın Asimetri / Factorization
IQ	Sayı Başlıklar / Number Relations	IQ	İşlemler / Operations
Geo	Açıortay / Bisector	Geo	İkizkenar ve Eşkenar Üçgen

Mat	İki Üzerine İşlem ve Rasyonel Sayılar	Mat	Birinci Dereceden Denklem
IQ	Şifreler / Passwords	IQ	Sayı Örüntüleri / Number patterns
Geo	Açılar / Angles	Geo	Üçgenin Açılar / Angles in triangles

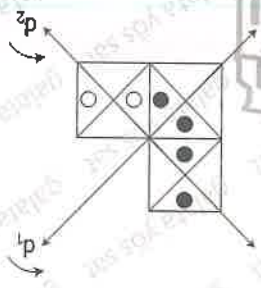
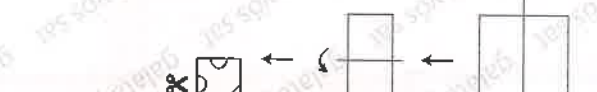
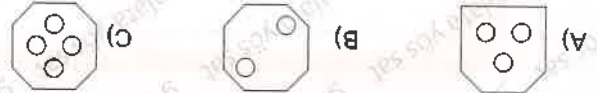
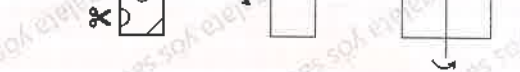
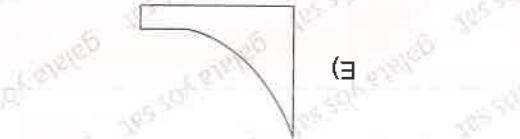
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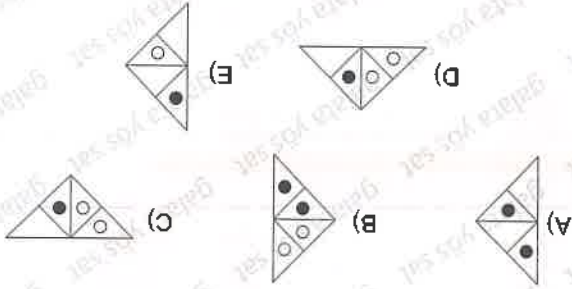
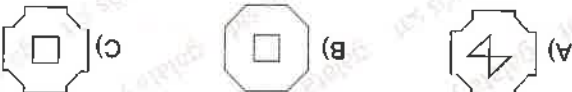
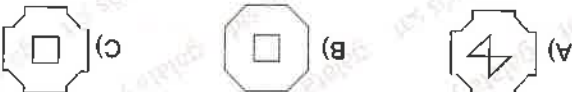
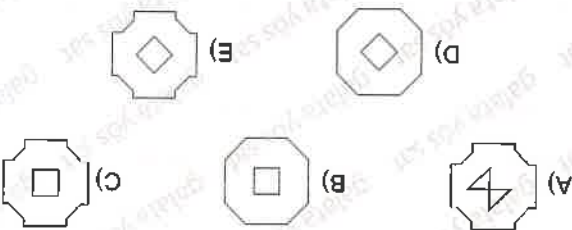
Alt ve üst tabanları açık boru şeklindeki silindirin taraflı düzlem boyunca kesilip, üstteki parça atılıyor. Altta kalan parça AB doğrusu boyunca kesilerek açıldığında aşağıdaki görünümünden hangisi elde edilir ?

The upper and lower bases of the open pipe cylinder are thrown along the shaded plane. Which of the following views is obtained when the lower part is cut open along the AB line?

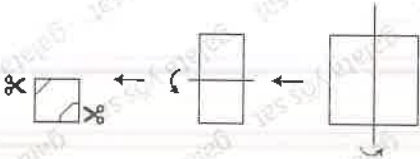


Yükarıdaki şekil önce  $d_1$  sonra da eksenini çevresinde  $d_2$  yönünde katedildiğinde oluşan şekli aşağıdakilerden hangisidir ?

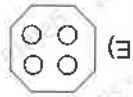
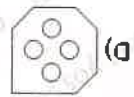
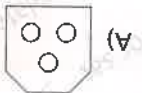
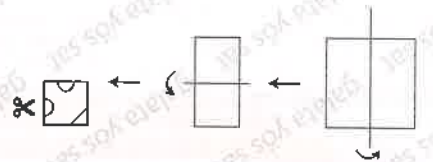
Which of the following is the figure formed when the above figure is folded around the  $d_1$  and then  $d_2$  axis in the direction of the arrow?

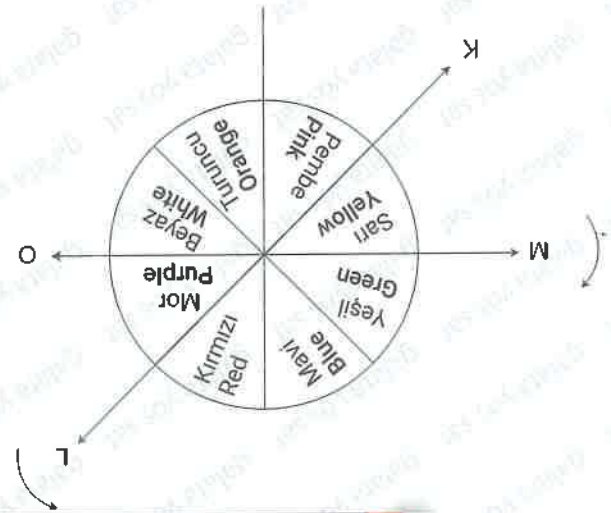


3.



2.





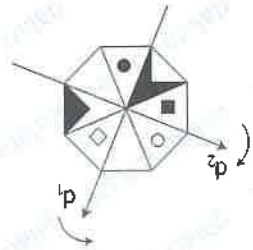
Yukarıdaki şekil önce KL doğrusu boyunca ok yönünde sonra OM doğrusu ok yönünde katlandığında alt tan üstte doğru üst üste gelen renkler hangisidir ?  
In the above figure, first along the line KL in the direction of the arrow, then when the line OM is folded in the direction of the arrow, which are the colors that overlap from bottom to top?

- A) Yeşil - Turuncu - Kırmızı - Mavi  
Green - Orange - Red - Blue
- B) Pembeye - Sarı - Yeşil - Turuncu  
Pink - Yellow - Green - Orange
- C) Turuncu - Yeşil - Sarı - Pembeye  
Orange - Green - Yellow - Pink
- D) Yeşil - Turuncu - Pembeye - Sarı  
Green - Orange - Pink - Yellow
- E) Sarı - Pembeye - Turuncu - Yeşil  
Yellow - Orange - Green - Pink

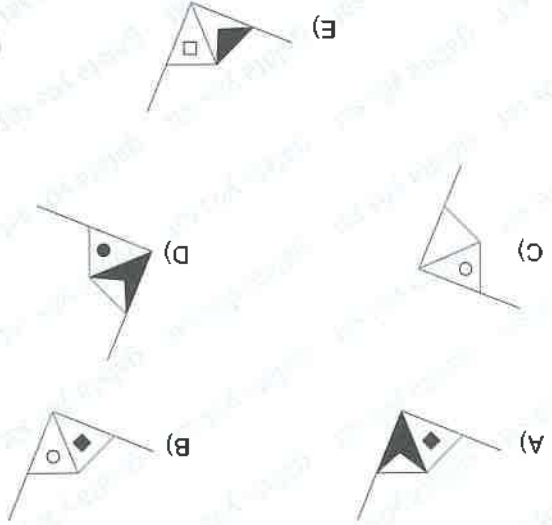
6.



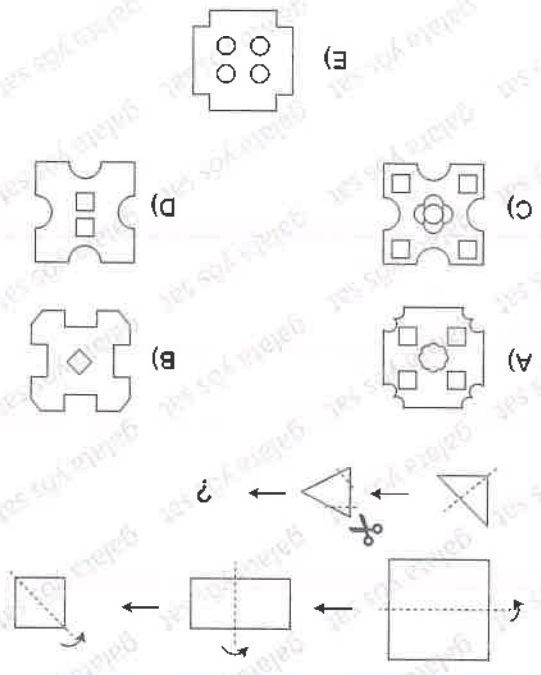
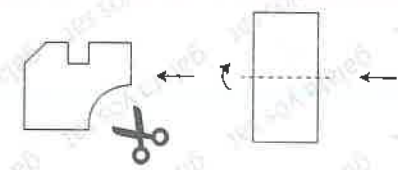
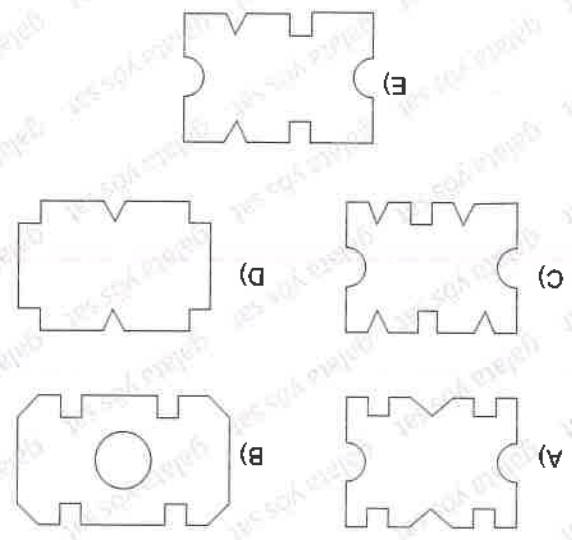
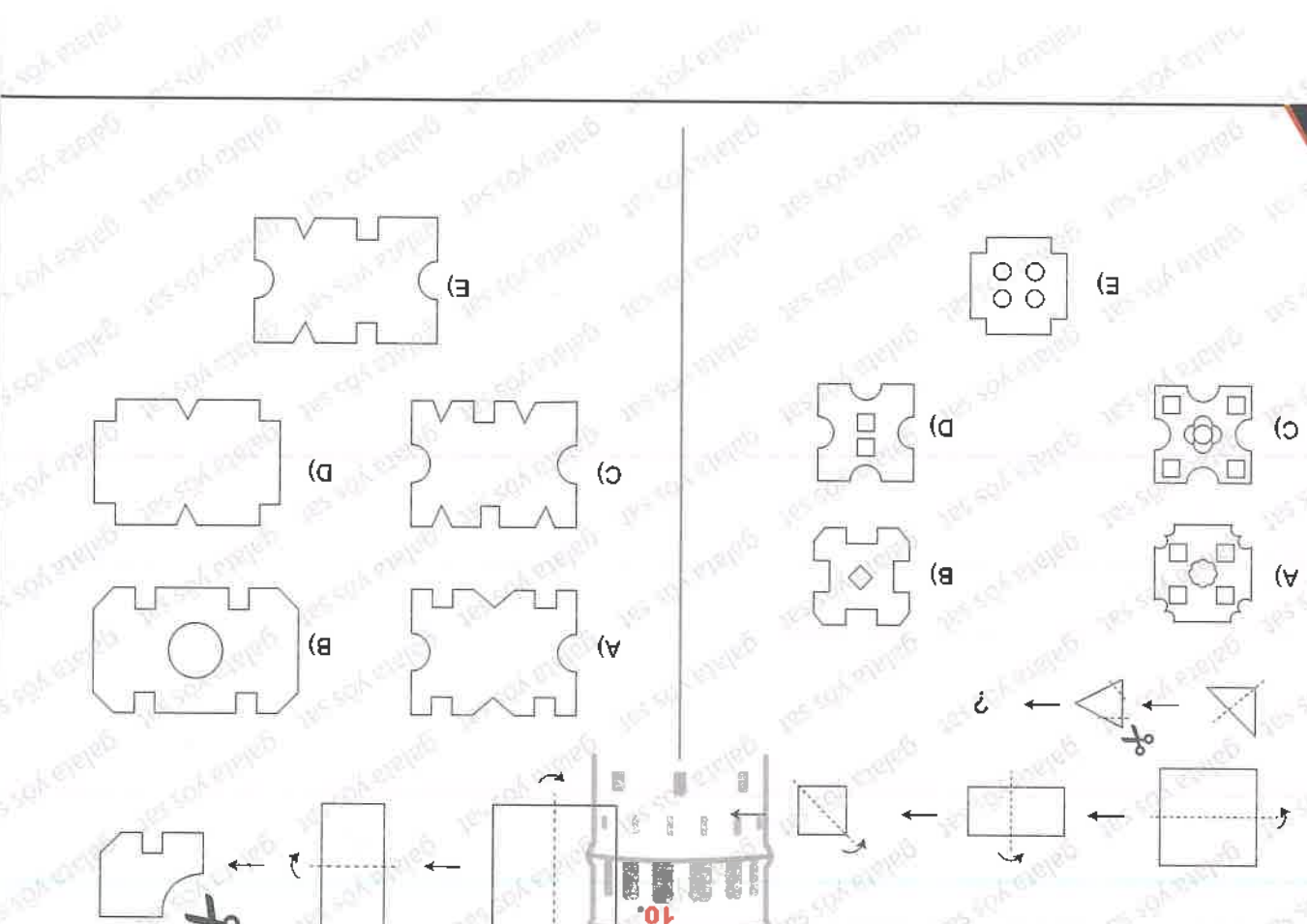
Yukarıdaki şekil önce  $d_1$  sonra  $d_2$  doğrusu ekseninde ok yönünde katlanırsa oluşan şekil aşağıdakilerden hangisidir ?  
If the figure above is folded in the direction of the arrow on the  $d_1$  and then  $d_2$  line axis, what is the figure below?



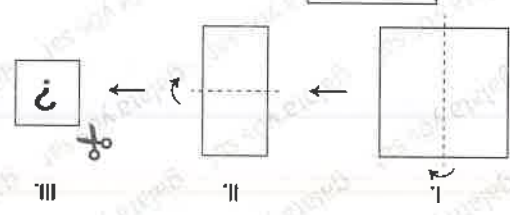
5.



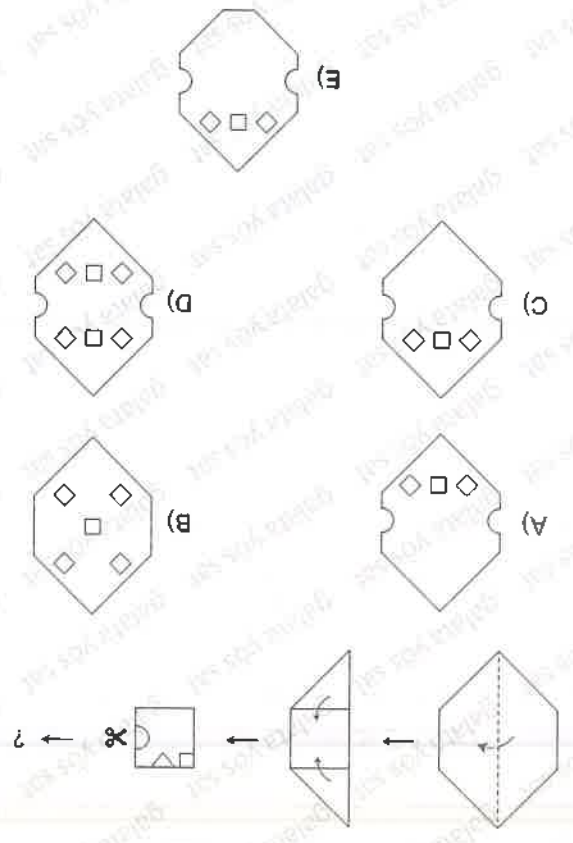




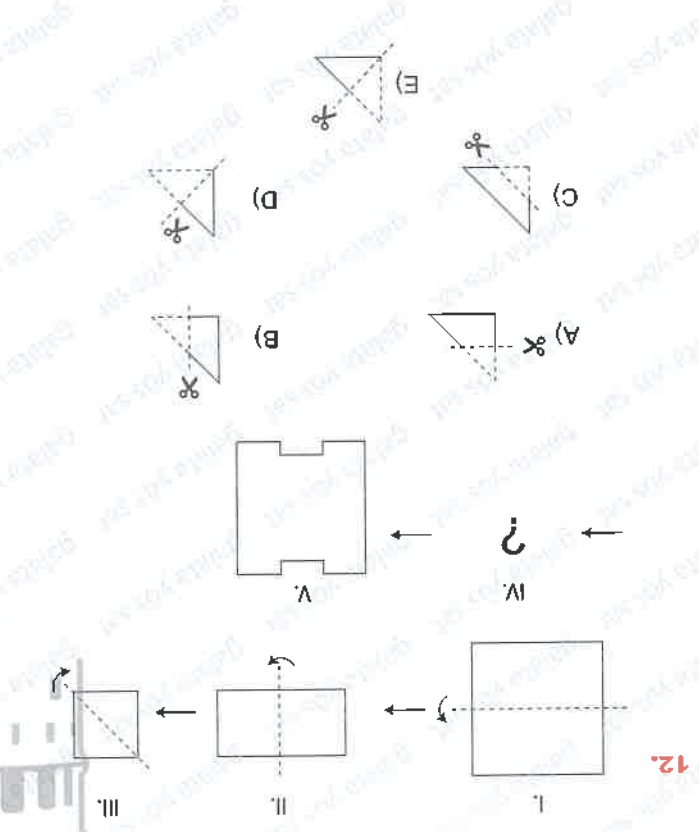
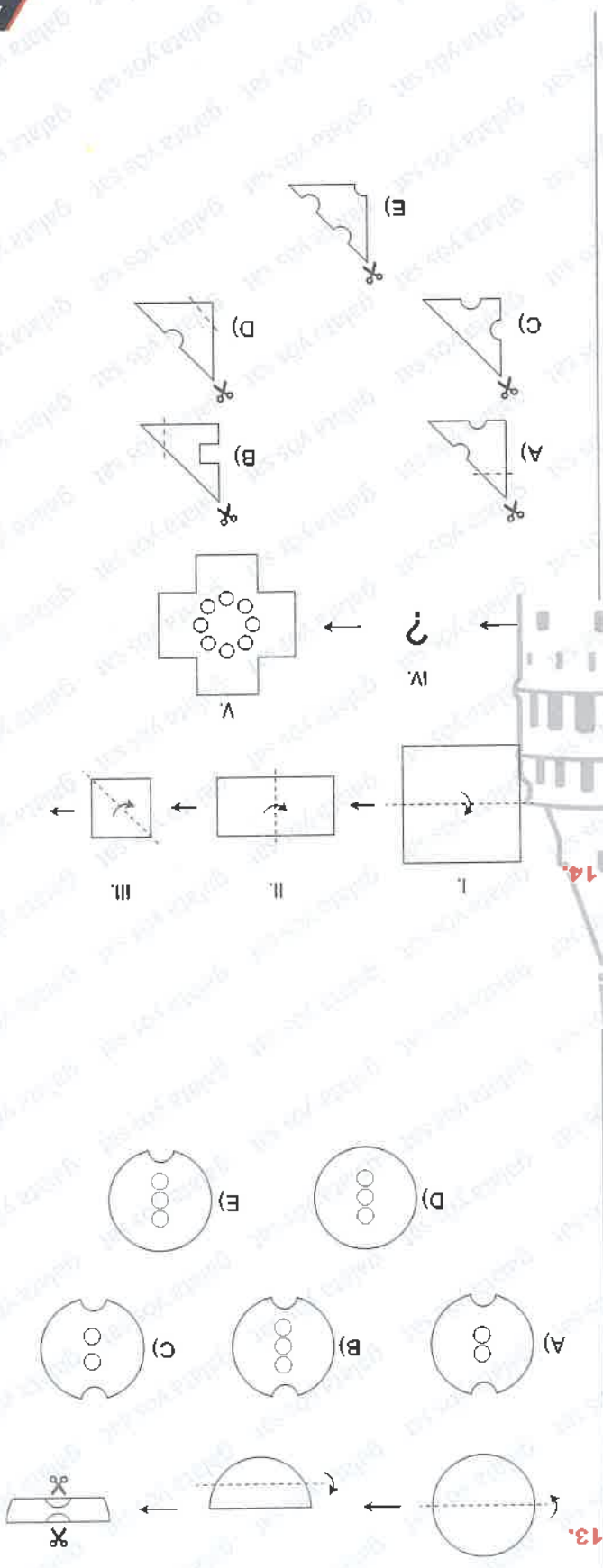
Yandaki şeklin oluşması için kağıt III. adımda nasıl kesilmiştir?  
 How was the paper cut in step III.  
 to create the shape?



9.

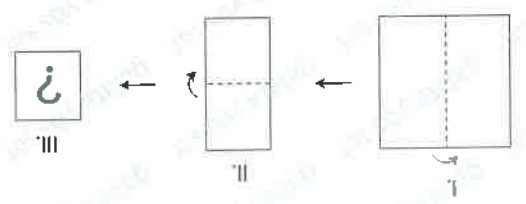


7.



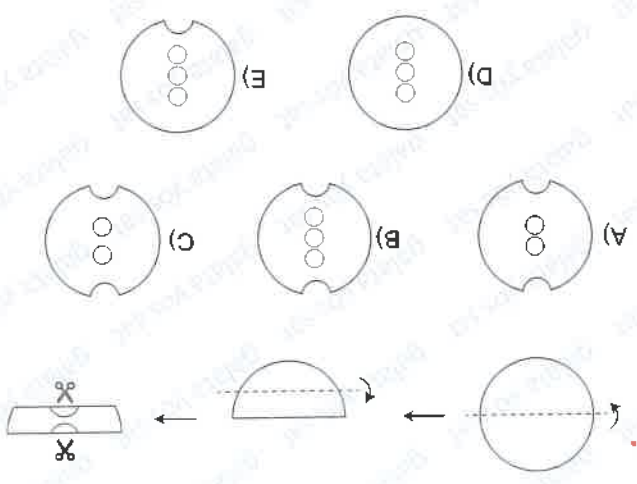
12.

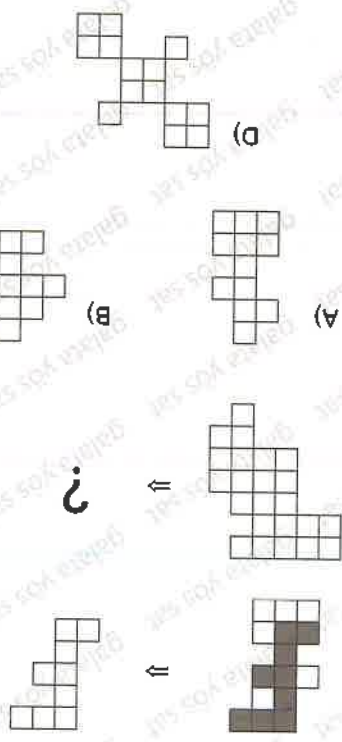
Yandaki şeklin oluşması için kağıt III. adımda nasıl kesilmiştir?  
How was the paper cut in III. to create the shape?



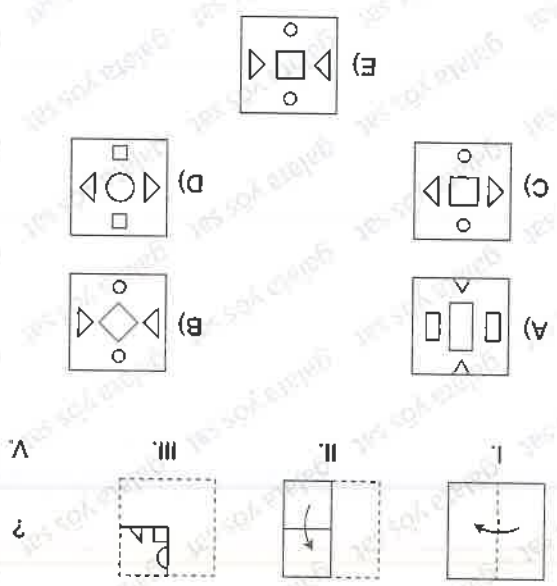
11.

13.

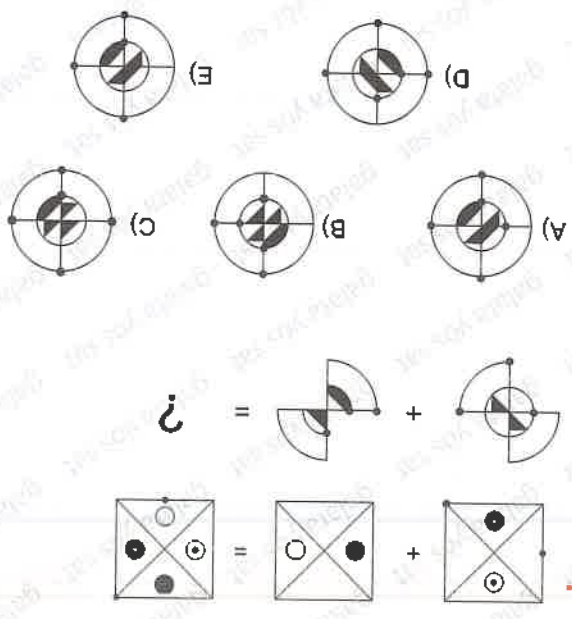




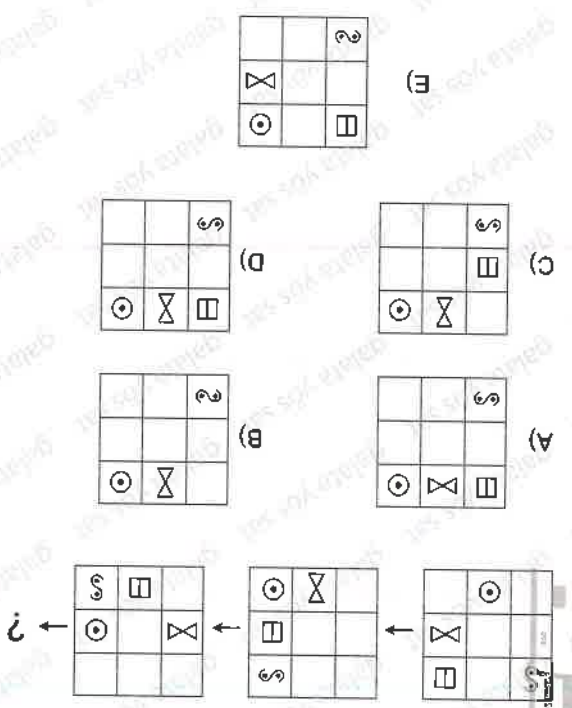
16.



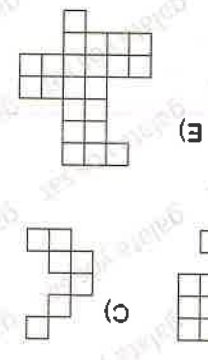
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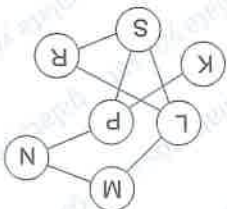
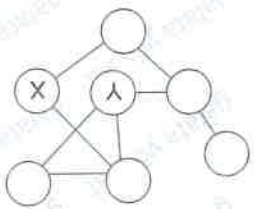
17.



18.

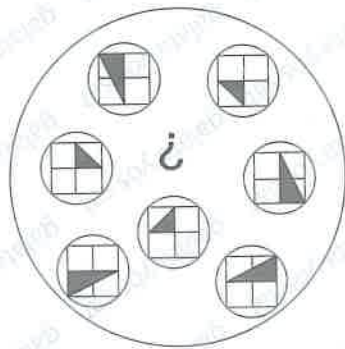


19.



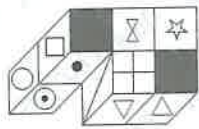
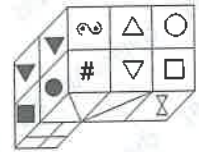
- A)  $\frac{Y}{X}$
- B)  $\frac{S}{M}$
- C)  $\frac{M}{S}$
- D)  $\frac{R}{S}$
- E)  $\frac{M}{L}$

21.



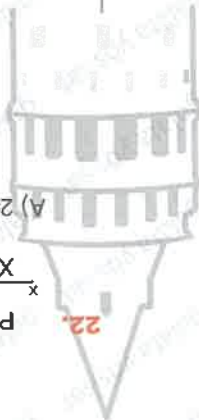
- A)
- B)
- C)
- D)
- E)

19.



- A)
- B)
- C)
- D)
- E)

20.



23.

$$\begin{array}{r} P R \\ \times \\ X 5 \\ \hline A) 24 \end{array}$$

$$\begin{array}{r} P R \\ \times \\ W Z \\ \hline B) 32 \end{array}$$

$$\begin{array}{r} P R \\ \times \\ X Y \\ \hline C) 48 \end{array}$$

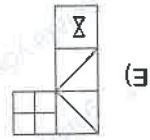
$$X \cdot W = ?$$

- A) 24
- B) 32
- C) 48
- D) 60
- E) 84

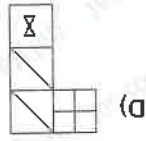
18	20	7	K
34	42		
L	64	16	13
11	9	36	10
	23	26	
8	11	17	46

$$K + L = ?$$

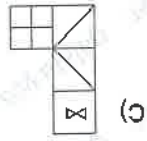
- A) 63
- B) 64
- C) 64
- D) 66
- E) 67



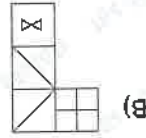
E)



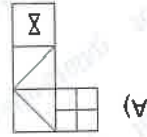
D)



C)



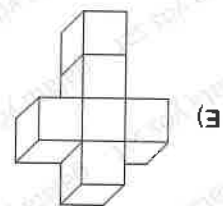
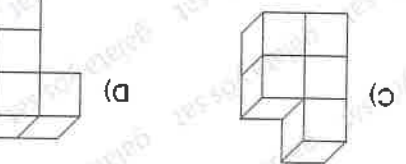
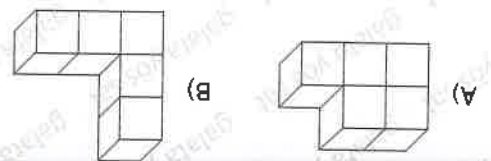
B)



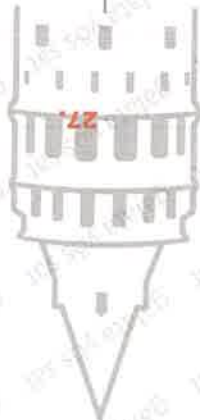
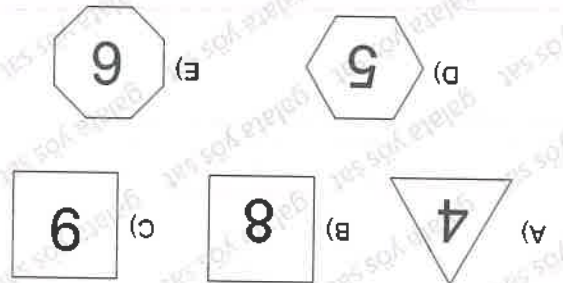
A)



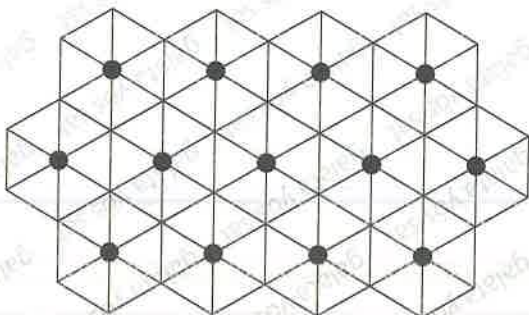
24. Aşağıdakilerden hangisi farklıdır ?  
Which of the following is different ?



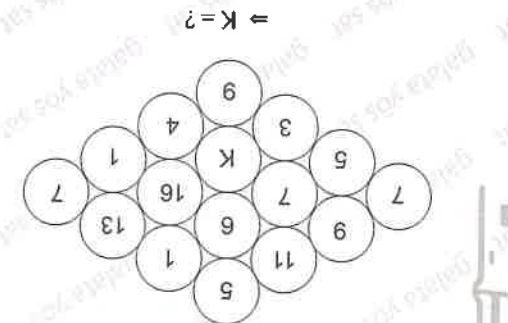
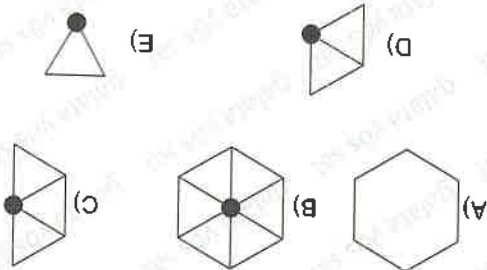
25. Aşağıdakilerden hangisi farklıdır ?  
Which of the following is different ?



26.



Yükarıdaki süslemenin kodu aşağıdakilerden hangisidir ?  
Which of the following is the code for the decoration above?

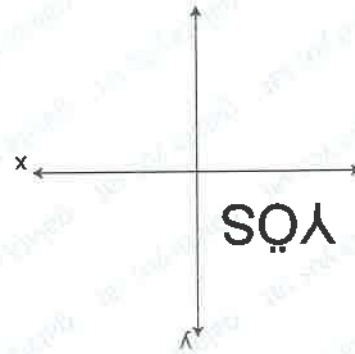


A) 6 B) 7 C) 8 D) 11 E) 13

= K = ?



28.



Koordinat sisteminin 2. bölgesine yazılan YÖS kelimesinin önce x eksenine sonra y eksenine göre simetrigi alınınca aşağıdakilerden hangisi elde edilir ?

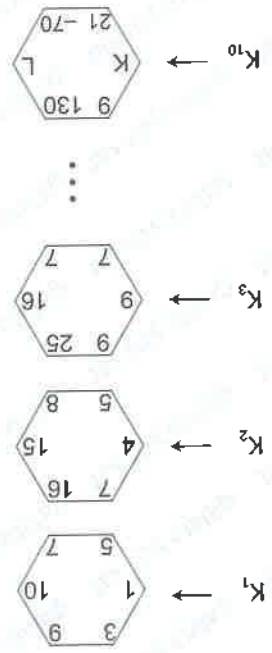
When the word YÖS written in the second region of the coordinate system is symmetrical with respect to the x-axis and then the y-axis. Which of the following is obtained?

- A) YÖS  
B) YÖZ  
C) SÖY  
D) SÖY  
E) YÖZ

29.  $7 \cdot 9 + 9 \cdot 11 + 11 \cdot 13 + \dots + 29 \cdot 31 = K$   
 $27 \cdot 33 + 33 \cdot 39 + \dots + 87 \cdot 93 = ?$

- A)  $9K+63$   
B)  $3K+189$   
C)  $9K-63$   
D)  $3K-315$   
E)  $9K-567$

30.



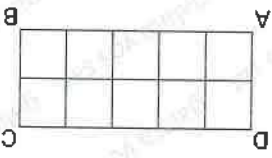
Yükarıdaki işlemi 10. adımda K ile L'in değeri nedir ?  
 What is the value of K and L in the 10th step of the above process?

- A)  $K = 121$      $L = -61$   
B)  $K = 144$      $L = -61$   
C)  $K = 100$      $L = -61$   
D)  $K = 100$      $L = +61$   
E)  $K = 121$      $L = +61$

1.

3 mektup 4 posta kutusunda kaç değişik şekilde atılabilir ?  
 How many different ways can 3 letters be sent in 4 mailboxes?

- A) 4    B) 8    C) 32    D) 64    E) 81

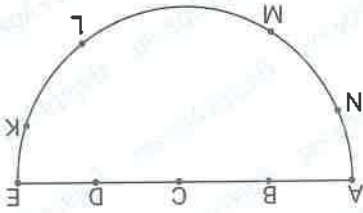
2.  $\{0, 1, 2, 3, 4, 5, 6\}$  kümesinin elemanları kullanarak rakamları farklı üç basamaklı 400 den küçük kaç sayı yazılabilir?  
How many numbers less than 400 with different digits can be written using the elements of  $\{0, 1, 2, 3, 4, 5, 6\}$  set?
- A) 60 B) 90 C) 120 D) 150 E) 180
3.  How many different ways can be taken from A to C by the shortest route?  
A dan C ye gizlileri takip ederek en kısa yoldan kaç farklı şekilde gidilebilir?
- A) 15 B) 16 C) 18 D) 20 E) 21
4. GALATA kelimesinin harfleri ile iki A yan yana gelme-mek şartıyla 6 harfli kaç farklı kelime yazılabilir?  
How many different words of 6 letters can be written, provided that the letters of the word GALATA and the two A letters do not come together?
- A) 108 B) 96 C) 72 D) 48 E) 24
5.  $\{a, b, c, d, e, f\}$  kümesinin 4 elemanlı alt kümelerinin kaç tanesinde a bulunur, b bulunmaz?  
How many of the 4-element subsets of the set  $\{a, b, c, d, e, f\}$  have a and not b?
- A) 7 B) 6 C) 5 D) 4 E) 3
6. 3 öğrenci, 5 öğrenci arasından 1 öğretmen ve 2 öğrenci yan yana kaç değişik biçimde fotoğraf çekilebilir?  
How many different ways can 1 teacher and 2 students take pictures side by side among 3 teachers and 5 students?
- A) 120 B) 136 C) 140 D) 160 E) 180
7.  $(x^2 - 2y)^8$  açılımında sondan 3. terimin kat sayısı kaçtır?  
What is the coefficient of the last 3 terms in the expansion?
- A) 1800 B) 1792 C) 1720 D) 1680 E) 1600
- How many different ways can be taken from A to C by the shortest route?
8.  $(2x^2 + \frac{1}{x})^9$  açılımında sabit terim kaçtır?  
What is the constant term in its expansion?
- A) 924 B) 884 C) 744 D) 672 E) 596
9.  $(\sqrt[3]{2} + \sqrt{2})^{11}$  açılımında rasyonel terim kaçtır?  
What is the rational term in its expansion?
- A)  $8 \binom{5}{11}$  B)  $4 \binom{5}{11}$  C)  $2 \binom{5}{11}$  D)  $8 \binom{4}{10}$  E)  $4 \binom{4}{10}$

10.  $(x-y+z)^8 = +Ax^3y^3z^2 + \dots$

$\Rightarrow A = ?$

- A) -560 B) -90 C) -60 D) -30 E) -15

13.



Şekilde yarı çember ve çarpı üzerinde 9 nokta işaretleniyor. Bu noktalardan rastgele seçilen 3 noktanın bir üçgenin köşeleri olma olasılığı kaçtır ?

9 points are marked on the semicircle and cross in the figure. What is the probability that 3 points randomly chosen from these points are the vertices of a triangle?

- A)  $\frac{84}{37}$  B)  $\frac{42}{37}$  C)  $\frac{21}{20}$  D)  $\frac{7}{5}$  E)  $\frac{11}{21}$

11. İçinde 6 beyaz, 3 siyah ve 7 mavi top bulunan bir torbada beyaz olma olasılığı kaçtır ?

3 balls are drawn in a row from a bag containing 6 white, 3 black and 7 blue balls. What is the probability that all three drawn balls are white?

- A)  $\frac{7}{3}$  B)  $\frac{7}{1}$  C)  $\frac{28}{1}$  D)  $\frac{16}{3}$  E)  $\frac{8}{3}$

14.

Birinci torbada 3 kırmızı, 4 mavi ve ikinci torbada 4 kırmızı, 3 mavi top vardır. Birinci torbadan bir top alınıp rengine bakılmadan ikinci torbaya atılıyor. Daha sonra ikinci torbadan da 2 top alınıyor. Son durumda ikinci torbadan geliken iki topun aynı renkte olma olasılığı nedir?

The first bag contains 3 red, 4 blue and the second bag contains 4 red and 3 blue balls. One ball is taken from the first bag and 2 balls are taken from the second bag regardless of the color. What is the probability that the two balls drawn from the second bag are the same color?

- A)  $\frac{196}{85}$  B)  $\frac{98}{43}$  C)  $\frac{196}{87}$  D)  $\frac{49}{22}$  E)  $\frac{89}{196}$

12. A ve B olayları için  $P(A \cup B) = \frac{5}{2}$ ,  $P(A \cap B) = \frac{3}{2}$ ,  $P(A) = \frac{6}{1}$ ,  $P(B) = ?$

- A)  $\frac{30}{17}$  B)  $\frac{30}{13}$  C)  $\frac{3}{1}$  D)  $\frac{30}{29}$  E)  $\frac{1}{15}$

15.  $\frac{\cot^2 x}{1} = 2 \tan x - 1$

denkleminin  $[0, 2\pi]$  aralığındaki köklerin toplamı kaçtır ?  
What is the sum of the roots in  $[0, 2\pi]$  range?

- A)  $\frac{2}{3\pi}$  B)  $\frac{6}{11\pi}$  C)  $\frac{3}{5\pi}$  D)  $\frac{6}{7\pi}$  E)  $\frac{5}{6\pi}$

16.  $\log_5 \left( \frac{1}{9+4^x} \right) - 2$ ,  $\log_3 (17+8^x) - y$

$= y = ?$

- A) 4 B) 5 C) 6 D) 7 E) 8

17.  $\frac{\sqrt{16-x^2}}{x^2-4x-12} \leq 0 = SS = ?$

- A)  $[-6,4]$  B)  $[-4,6]$  C)  $[-2,4]$  D)  $[-4,2]$  E)  $[-6,6]$

18.  $\lim_{x \rightarrow \infty} x \ln \left( 1 + \frac{3}{x} \right) = ?$

- A) 3 B)  $\frac{2}{3}$  C) 0 D) -1 E) -2

19. Gerçel sayılar kümesinde tanımlı ve türevlenebilir bir  $f$  fonksiyonu için  $f(x+y) = f(x) + f(y) + x \cdot y$   $f$  fonksiyonu için  $f(x+y) = f(x) + f(y) + x \cdot y$  for a differentiable function  $f$  defined in a set of real numbers

$\lim_{h \rightarrow 0} \frac{f(h)}{h} = 3 = f'(1) = ?$

- A) 2 B) 3 C) 4 D) 5 E) 6

23.

$\frac{x^2+5x-14}{x^2-4} : \frac{x+7}{1} = 14 = x = ?$

- A) 10 B) 12 C) 14 D) 16 E) 18

22.

$\int_{e^2}^e x(\ln x)^2 dx = ?$

- A)  $\frac{1}{2}$  B)  $\frac{2}{3}$  C) 1 D) 2 E) 4

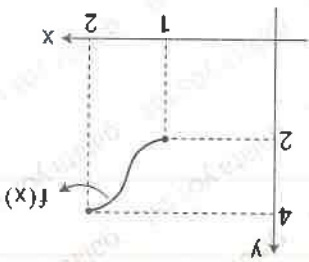
21.

$\int_b^a (2x-x^2) dx$  b > 0 olduğuna göre

ifadesinin en büyük değeri kaçtır ?  
What is the highest value of the expression?

- A)  $\frac{1}{2}$  B)  $\frac{2}{3}$  C)  $\frac{2}{5}$  D)  $\frac{3}{1}$  E)  $\frac{3}{4}$

20.



olduğuna göre  $\int_2^1 f(x) dx + \int_4^2 f^{-1}(x) dx = ?$

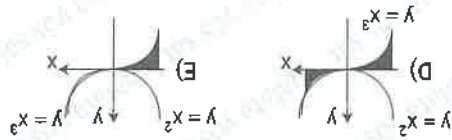
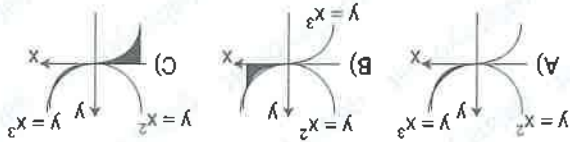
- A) 2 B) 4 C) 6 D) 8 E) 10



24.  $y \geq x^3$ ,  $y \leq x^2$ ,  $x \cdot y \geq 0$

eşitsizlik sisteminin analitik düzlemdeki görünüşü aşağıdakilerden hangisidir ?

What is the image of the inequality system on the analytical plane?



25.

$$y = ax^2 - 2x + 1$$

parabolünün tepe noktası x eksenı üzerinde olduğuna göre, a kaçtır ?

Since the vertex of the parabola is on the x-axis, what is a?

- A) 5 B) 4 C) 3 D) 2 E) 1

29.

a, b, c  $\in \mathbb{Z}$

$$(5a + 3b + c) \cdot (3a + b - c) = 19$$

$$= a + b + c = ?$$

- A) 7 B) 8 C) 9 D) 10 E) 12

30.

E evrensel küme,  
E universal set;

$$A \subset E, s(A) = 9, s(E) = 14 = s(A') = ?$$

- A) 2 B) 3 C) 4 D) 5 E) 6

$$26. x, y \in \mathbb{R} \begin{cases} \sqrt{x-y} = x+y-3 \\ \sqrt{x+y} = x-y+1 \end{cases} = x \cdot y = ?$$

- A) 15 B)  $\frac{2}{15}$  C) 5 D) 3 E)  $\frac{4}{15}$

28.

$$\frac{9}{a} = \frac{4}{b} = \frac{c}{8} \Rightarrow \sqrt{(a+b) \cdot c} = ?$$

- A)  $3\sqrt{10}$  B)  $4\sqrt{6}$  C) 10 D)  $2\sqrt{26}$  E)  $2\sqrt{30}$

27.

$$x \in \mathbb{R}, \frac{a}{x} < 1 - \frac{b}{a}$$

olduğuna göre, aşağıdakilerden hangisi kesinlikle doğrudur? Which of the following is absolutely true?

- A)  $b < 1$  B)  $b > 1$  C)  $b < x$  D)  $b > x$  E)  $a < b$



1. A (3, -5) noktasının x eksenine göre simetrisi  $5x - 4y + k = 0$  doğrusunun üzerinde ise  $k = ?$   
If the symmetry of the point A (3, -5) with respect to the x-axis is on the line  $5x - 4y + k = 0$  then  $k = ?$

A) 3 B) 4 C) 5 D) 6 E) 7

2. A (-5, 4) noktasının orijine göre simetrisi B, y eksenine göre simetrisi C olduğuna göre  $|BC| = ?$   
Since the point A (-5, 4) is symmetric with respect to the origin B and its symmetric with respect to the y axis is C,  $|BC| = ?$

A) 3 B) 4 C) 8 D) 10 E) 12

3. A (-2, 4) noktasının  $x = 7$  doğrusuna göre simetrisi B noktası, B noktasının  $y = -3$  doğrusuna göre simetrisi C ise C'nin koordinatları toplama nedir?  
If the symmetry of the point A (-2, 4) with respect to the line  $x = 7$  is point B, and the symmetry of point B with respect to the line  $y = -3$  is C, what is the sum of the coordinates of C?

A) 6 B) 7 C) 8 D) 9 E) 10

4. A (-5, 10) noktasının B (a, b) noktasına göre simetrisi C (-15, 8) olduğuna göre  $a - b = ?$   
The symmetry of the point A (-5, 10) to the point B (a, b) is C (-15, 8), What is  $a - b = ?$

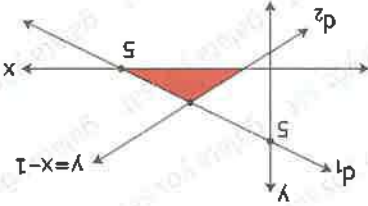
A) -1 B) 1 C) 19 D) -19 E) -5

5.  $4x - 12y + 14 = 0$  doğrusunun x eksenine göre simetrisi olan y eksenini hangi noktada keser?  
At what point does the line  $4x - 12y + 14 = 0$  intersect the y axis, which is symmetrical with respect to the x axis?

A)  $-\frac{6}{5}$  B) -1 C)  $-\frac{6}{7}$  D)  $\frac{6}{7}$  E)  $\frac{7}{6}$

6.  $d_1: 2x - 3y + 5 = 0$   $d_2: x + 2y - 8 = 0$  doğruslarının kesim noktasından geçen ve x eksenine pozitif yönde  $120^\circ$  açı yapan doğrunun denklemini yazınız. Write the equation of the line that passes through the cutting point of the lines and makes a positive  $120^\circ$ -degree angle with the x-axis.

A)  $y + \sqrt{3}x - 2\sqrt{3} - 3 = 0$  B)  $y + \sqrt{3}x - 2\sqrt{3} + 3 = 0$   
C)  $y + \sqrt{3}x + 2\sqrt{2} + 3 = 0$  D)  $\sqrt{3}y + x - 2\sqrt{3} + 3 = 0$   
E)  $\sqrt{3}y - x + 2\sqrt{3} - 3 = 0$



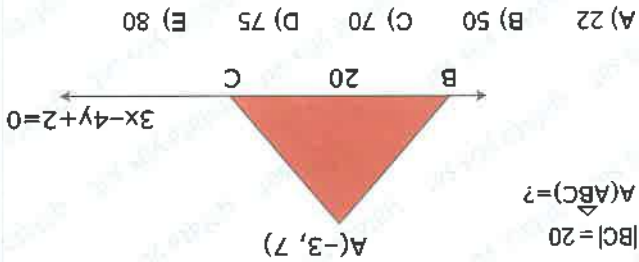
$d_1, d_2$  ve x eksenli arasında kalan bölgenin alanı nedir? What is the area between  $d_1, d_2$  and the x-axis?

A) 4 B) 5 C) 8 D) 10 E) 16

8. A (-2, k) noktası  $2x - 5y - 23 = 0$  doğrusunun üzerinde  $k = ?$   
If the point A (-2, k) is above the  $2x - 5y - 23 = 0$  line,  $k = ?$

A)  $-\frac{22}{5}$  B)  $-\frac{5}{23}$  C)  $-\frac{5}{27}$  D)  $\frac{5}{27}$  E)  $\frac{5}{28}$

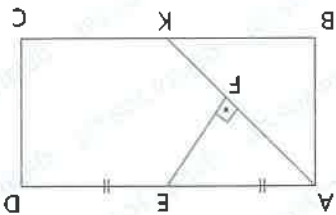
9.  $|BC| = 20$



$A(\triangle ABC) = ?$

- A) 22 B) 50 C) 70 D) 75 E) 80

12. ABCD dikdörtgen



- ABCD dikdörtgen  
 $|AE| = |ED|$   
 $[EF] \perp [AK]$   
 $|EF| = 4$   
 $|AK| = 7$   
 $A(\text{ABCD}) = ?$

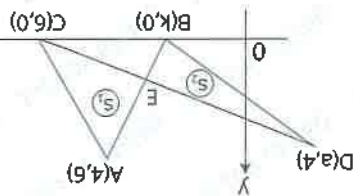
- A) 28 B) 30 C) 36 D) 40 E) 56

10.  $A(\triangle AEC) = S_1$

$A(\triangle DEB) = S_2$

$S_1 - S_2 = 4$

$k = ?$



- A) 1 B) 2 C) 3 D) 4 E) 7

13. ABCD : kare

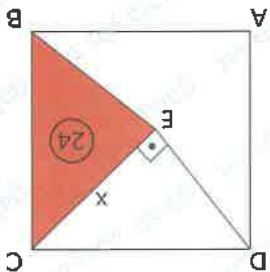
ABCD : square

$[DE] \perp [CE]$

$A(\triangle BCE) = 24$

$|CE| = x = ?$

- A)  $2\sqrt{3}$  B)  $3\sqrt{3}$  C)  $4\sqrt{3}$  D)  $5\sqrt{3}$  E)  $6\sqrt{3}$



11. Analitik düzlemde iki noktadan birinin apsisi diğersinin 8 eksiğine, birinin ordinatı diğersinin 6 fazlasına eşit olduğunu göre iki nokta uzaklık nedir ?  
 Since the abscissa of one of the two points on the analytical plane is equal to 8 minus the other and the ordinate of one equals 6 plus the other, what is the two point distance?

- A) 5 B) 6 C) 7 D) 9 E) 10

14. BDEF : deltoid

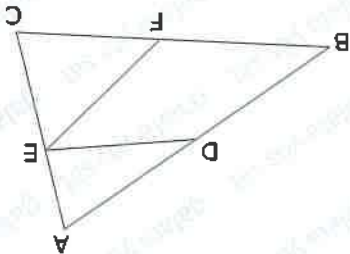
$\frac{|EC|}{|AE|} = 3$

$|EC| = |AB|$

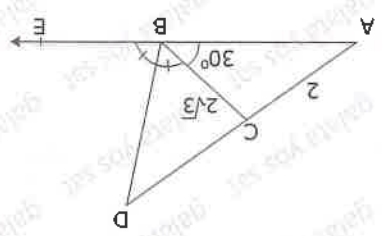
$S(\triangle ABC) = 48$

$|AE| = ?$

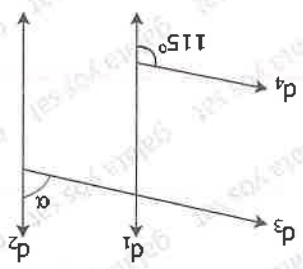
- A) 3 B) 4 C) 6 D) 9 E) 27



17.  $m(\widehat{CBD}) = m(\widehat{DBE})$   
 $m(\widehat{ABC}) = 30^\circ$   
 $|AC| = 2$   
 $|BC| = 2\sqrt{3}$   
 $A(\widehat{DBC}) = ?$   
 A)  $6 + 6\sqrt{3}$   
 B)  $6\sqrt{3} - 6$   
 C)  $6\sqrt{3} + 7$   
 D)  $6\sqrt{3} + 12$   
 E)  $12 + 12\sqrt{3}$

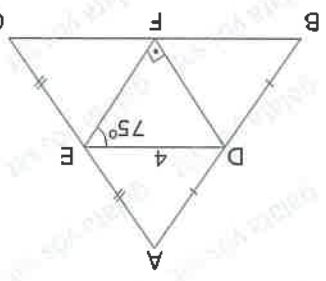


20.  $d_1 \parallel d_2$   
 $d_3 \parallel d_4$   
 $\alpha = ?$

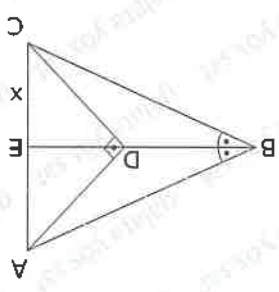


- A) 60 B) 65 C) 80 D) 95 E) 125

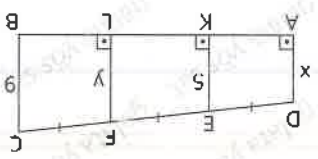
16.  $|AD| = |DB|$   
 $|AE| = |EC|$   
 $[DF] \perp [EF]$   
 $m(\widehat{DEF}) = 75^\circ$   
 $|DE| = 4$   
 $A(\widehat{ABC}) = ?$   
 A) 6 B) 7 C) 8 D) 10 E) 12



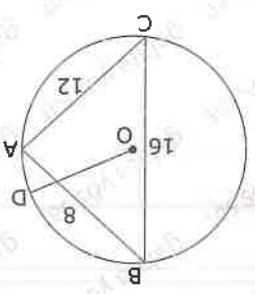
19.  $m(\widehat{ABD}) = m(\widehat{DBC})$   
 $[AD] \perp [DC]$   
 $|AB| = |BC|$   
 $|BD| = |DB|$   
 $|AB| = 6\sqrt{5}$   
 $|EC| = x = ?$   
 A) 3 B) 4 C) 5 D) 6 E) 8



15.  $|DE| = |EF| = |FC|$   
 $|EK| = 5$   
 $|BC| = 9$   
 $|AD| = x$   
 $|FL| = y$   
 $x - y = ?$   
 A) -2 B) -3 C) -4 D) -5 E) -7



18.  $O$  çemberin merkezi!  
 $|AB| = 8$   
 $|AC| = 12$   
 $|BC| = 16$   
 $|OD| = r = ?$   
 A)  $\frac{\sqrt{15}}{8}$  B)  $\frac{\sqrt{15}}{12}$  C)  $\frac{\sqrt{15}}{16}$  D)  $\frac{\sqrt{15}}{32}$  E)  $\frac{\sqrt{15}}{64}$





# Başarıya Götüren

Mat	Problem Solving / Problem	Mat	Problem / Sorun
IQ	Problem Solving / Problem	IQ	Problem / Sorun
Geo	Problem Solving / Problem	Geo	Problem / Sorun

Mat	Integral / Integral	Mat	Parabolün Köşümlerini Bulma / Finding the vertex of a parabola
IQ	3 Boyutlu Cisim / 3D Object	IQ	Kesim - Kesim / Cutting - Folding
Geo	Doğru Analizi / Right Analytics	Geo	Birimlik / Symmetry

Mat	Integral / Integral	Mat	Türev / Derivative
IQ	Şekli Karşılaştırma / Shape Comparison	IQ	Şekli İlişkileri Sıralama / Figure Relations, Sort
Geo	Analitik Geometri / Analytical geometry	Geo	Daire Alanı / Area in a circle

Mat	Logaritma Fonksiyonları / Logarithm, Induction	Mat	Özel Tanımlı Fonksiyonlar / Custom Defined Functions
IQ	Şekli İlişkileri Tablo / Figure Relations, Table	IQ	Şekli İlişkileri Tablo / Figure Relations, Table
Geo	Dikdörtgen / Rectangular	Geo	Kare / Square

Mat	Karmaşık Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry
IQ	Şekli İlişkileri Tamamlama / Completing Shape Relations	IQ	KLM
Geo	Yamuk / Trapezoid	Geo	Elipsin Dörtgen / Rhombus

Mat	Modüler Aritmetik / Modular Arithmetic	Mat	Polinom / Polynomial
IQ	Küp Sayma Tamamlama / Cube Counting and Completion	IQ	Çizimler / Graphics
Geo	Çokgenler / Polygons	Geo	Dörtgen / Quadrilateral

Mat	İşlem / Operation	Mat	Karşılıklı Çarpım ve Fonksiyonlar / Cartesian Product and Functions
IQ	Denklemler Eşitlik / Equation Matching	IQ	Eşleştirmeler / Matching
Geo	Açı-kenar ilişkileri / Angle-side relation in triangle	Geo	Alan / Area of Triangles

Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers
IQ	Sayı Bağlantıları / Number relations	IQ	Tablolar / Tables
Geo	Oran / Ratio	Geo	Benzerlik / Similarity in Triangles

Mat	Basit Eşitsizlik ve Mutlak Değer / Simple Inequality and Absolute Value	Mat	Çarpımın Tersine / Factorization
IQ	Sayı Bağlantıları / Number Relations	IQ	İşlemler / Operations
Geo	Açıortay / Bisector	Geo	İkizkenar ve Eşkenar Üçgen / Isosceles and Equilateral Triangle

Mat	Basit Üçgen ve Rasyonel Sayılar / Order of operations and Rational Numbers	Mat	Birinci Dereceden Denklem / First-Degree equations
IQ	Şifreler / Passwords	IQ	Sayı Düzenlemeleri / Number patterns
Geo	Açı / Angles	Geo	Üçgenin Alanı / Angles in triangles

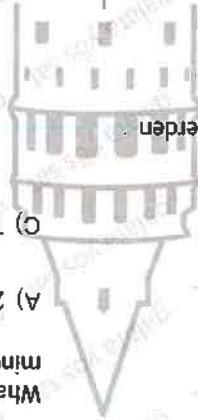
KTS-27

1. Bugün, günlerden 2 Nisan perşembe ve saat 14:00 ise 314 saat sonra; tarih, gün ve saat olarak aşağıda kilerden hangisidir ?  
Today is Thursday, April 2 at 14:00. Which of the following is the date, day and time after 314 hours?

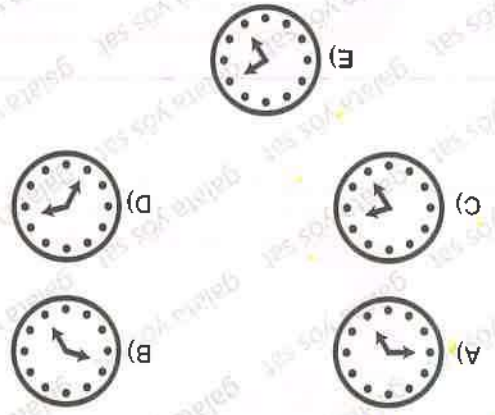
TARİH DATE	GÜN DAY	SAAT HOUR
A) 14 Nisan/April	Salı / Tuesday	22:00
B) 15 Nisan/April	Çarşamba / Wednesday	04:00
C) 15 Nisan/April	Salı / Tuesday	16:00
D) 15 Nisan/April	Çarşamba / Wednesday	16:00
E) 16 Nisan/April	Perşembe / Thursday	16:00

3. Saat 15:37 ise akrep ile yelkovan arasındaki açı kaç derecedir ?  
If it is 15:37 what is the angle between the hour hand and the minute hand?  
A) 246,5  
B) 216  
C) 192  
D) 135  
E) 113

4. Saat 23:30 da Akrep ile yelkovan arasındaki açı kaç derecedir ?  
What is the angle between the hour hand and the minute hand at 23:30?  
A) 216  
B) 186  
C) 192  
D) 201  
E) 165



2. Saat 09:25'te saatin aynadaki görüntüsü aşağıdakilerden hangisidir ?  
What is the mirror image of the clock at 09:25?



5. Saat 9:35 te akrep ile yelkovan arasındaki genis açı kaçtır ?  
What is the wide angle between the hour hand and the minute hand at 9:35 am?  
A) 77,5  
B) 226,5  
C) 268,5  
D) 282,5  
E) 310





6.



Şekilde noktalar kullanarak bir köşesi M olan kaç farklı üçgen çizilebilir ?

How many different triangles with a corner M can be drawn using points in the figure?

A) 9

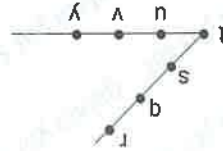
B) 12

D) 18

C) 15

E) 24

7.



Şekildeki noktalar ile kaç farklı üçgen çizilebilir ?

How many different triangles can be drawn with the points

in the figure?

A) 27

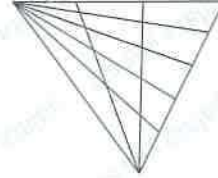
B) 26

C) 25

D) 24

E) 23

8.



Şekilde kaç üçgen vardır ?

How many triangles are there in the shape?

A) 40

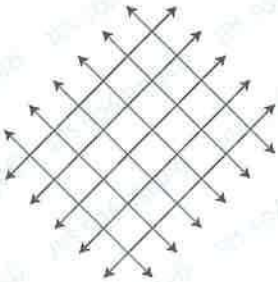
B) 50

C) 60

D) 75

E) 80

9.



Şekilde kaç dörtgen vardır ?

How many rectangles are there in the shape?

A) 150

B) 120

C) 80

D) 40

E) 20

10.



Şekilde kaç tane kare vardır ?

How many squares are there in the shape?

A) 24

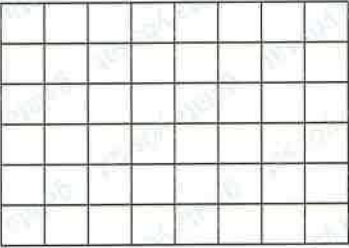
B) 36

C) 48

D) 50

E) 100

11.



Şekilde 3x2'lik dikdörtgen sayısı nedir ?

What is the number of 3x2 rectangles in the figure?

A) 63

B) 58

C) 55

D) 40

E) 35

12. V  
|  
R  
R  
R  
S  
S  
S  
S  
S  
S  
S  
S

12. VIRÜS kelimesi yukarıdan aşağı komşu harfler takip edilerek kaç türlü okunur ?  
In how many ways is the word VIRÜS read by following the adjacent letters from top to bottom ?

- A) 4 B) 8 C) 16 D) 32 E) 64

G	Ü	Z	E	L
G	Ü	Z	E	L
Ü	Z	E	L	L
Z	E	L	L	L
E	L	L	L	K

13. GÜZELLİK kelimesi sol üst köşeden başlayarak komşu harfler takip edilerek kaç farklı şekilde okunur ?

How many different ways is the word GÜZELLİK read, starting from the upper left corner, following the neighboring letters ?

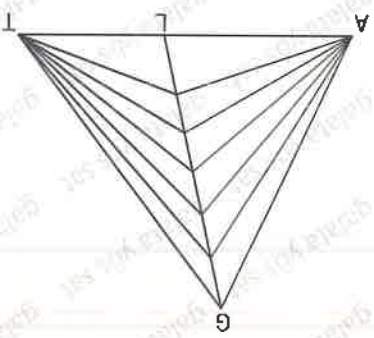
- A) 38 B) 35 C) 30 D) 25 E) 17



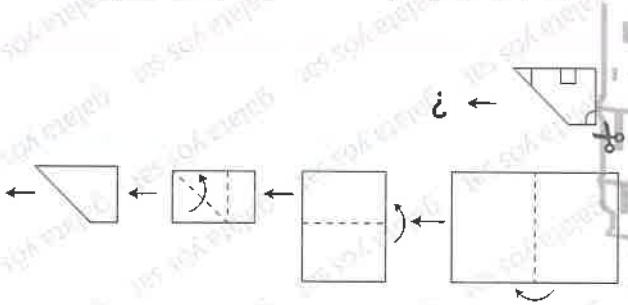
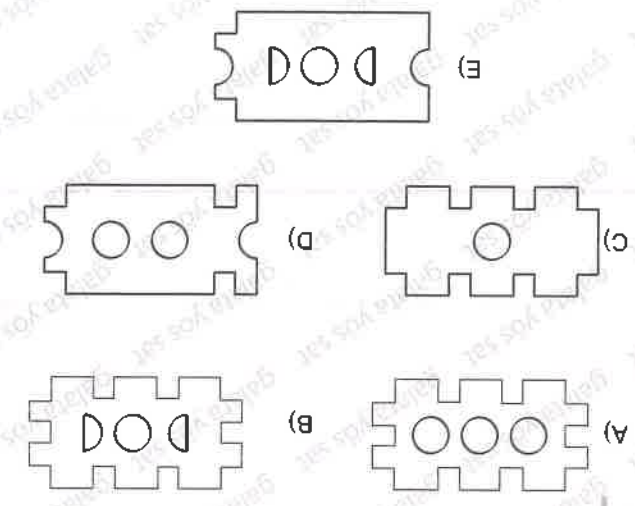
14. Şekildeki dikdörtgenin üzerinde bulunan 12 noktayı köşe kabul eden en fazla kaç tane üçgen çizilebilir ?  
How many triangles can be drawn in the figure as a corner? 12 points on the rectangle in the figure as a corner?

- A) 90 B) 108 C) 110 D) 112 E) 198

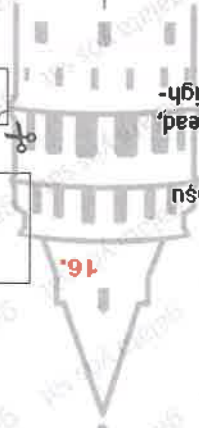
15. Yukarıdaki GAT üçgeninde A, L ve T noktaları doğrusaldır. Buna göre şekilde kaç üçgen vardır ?  
In the GAT triangle above, the points A, L and T are linear. How many triangles are there in the shape?



- A) 16 B) 24 C) 48 D) 50 E) 52

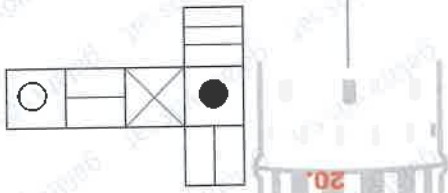


16.

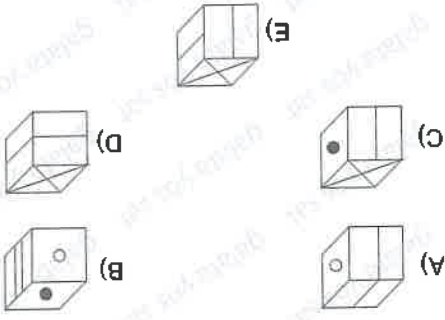


15.

19.

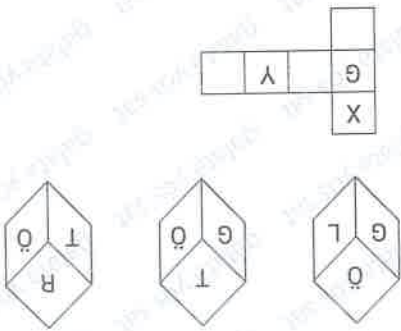


Dis yüzeylerin açık hali yukarıda verilen küp aşağıdaki-lerden hangisidir ?  
Which of the following is the folded shape of the cube given unfolded above ?

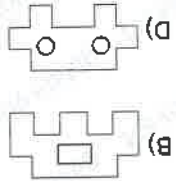
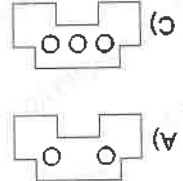
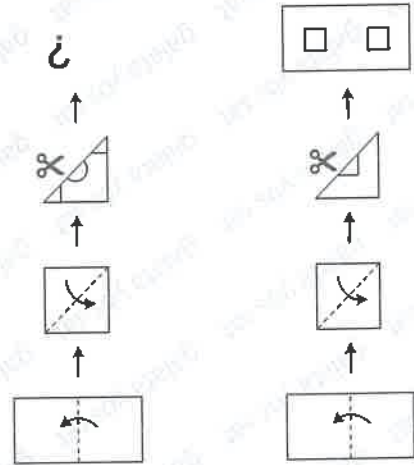


- A) G Ö Y  
B) Ö R Ö  
C) Ö T Ö  
D) T Ö R  
E) T R Ö

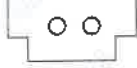
Yukarıdaki şekillerin tümü aynı küpü göstermektedir. Buna göre " X " ve " Y " küpün hangi yüzeylerini göstermektedir?  
All of the shapes above show the same cube. Accordingly, which faces of the cube do "X" and "Y" show?



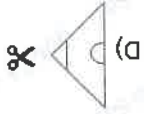
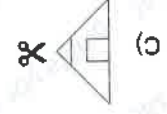
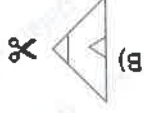
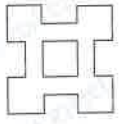
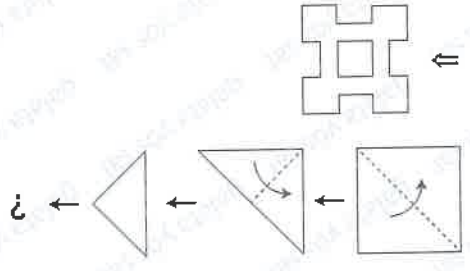
17.



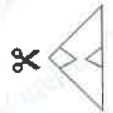
E)

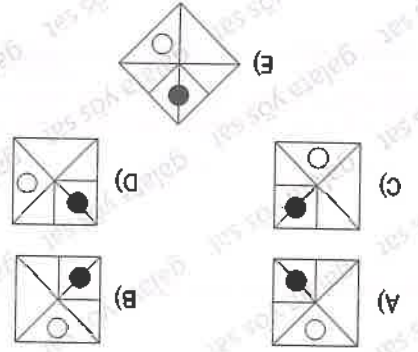
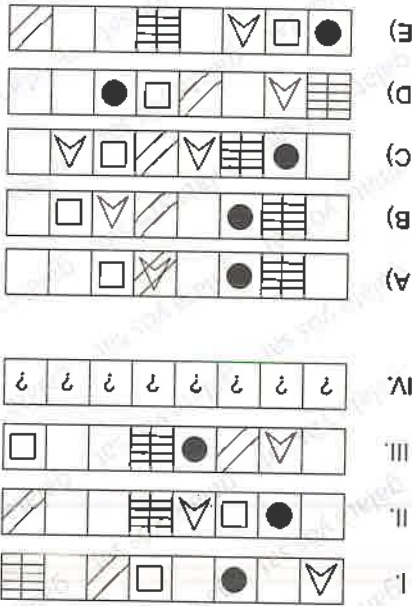
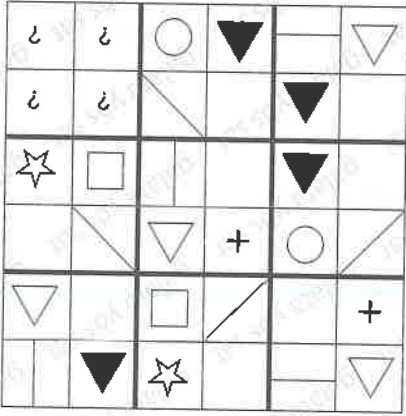
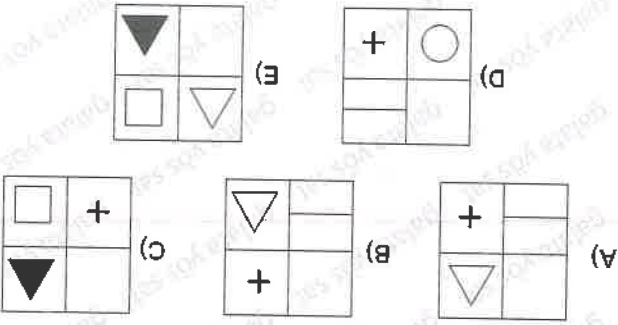


18.



E)





22. Asğıdakilerden hangisi farklıdır ?  
Which of the following is different ?

- A) 1 2 2 0 1
- B) 2 2 1 1 2
- C) 3 1 2 1 2
- D) 0 3 1 3 3
- E) 1 2 1 0 3

III.	0	4	C
II.	1	1	B
I.	2	A	1

21.



- A) 36 B) 40 C) 46 D) 54 E) 66

$a^3 + b^3 = ?$

		b
	a	6
10		

		b
	a	6
10		

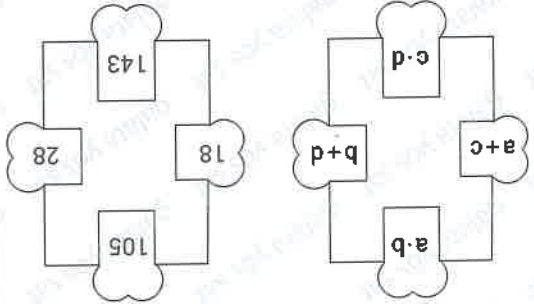
  

		b
	a	6
10		

28.

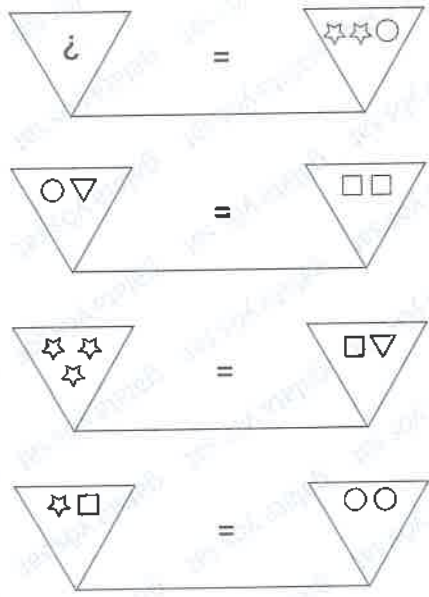
- A) 224 B) 232 C) 342 D) 448 E) 256

$a \cdot d + c \cdot b = ?$



26.

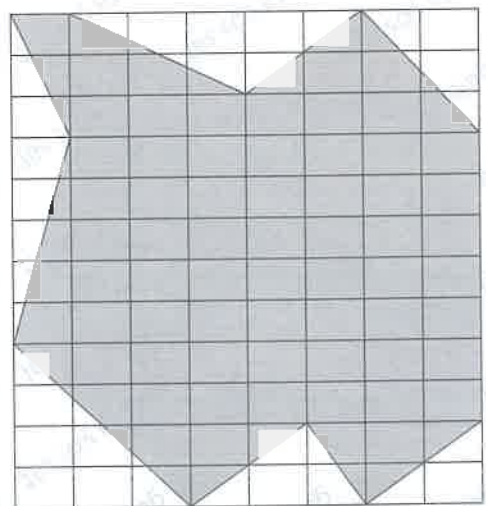
- A) □☆☆ B) ☆☆☆ C) ○△ D) △△ E) □□



27.

- A) 56 B) 62 C) 73 D) 75 E) 77

Taralı Alan = ?  
Shaded area = ?



25.



29.

- $\nabla 28 = 72$   
 $\nabla 36 = 63$   
 $\nabla 17 = 50$   
 $\nabla 29 = ?$

- A) 89    B) 83    C) 90    D) 96    E) 99

1.  $A = \begin{bmatrix} -2 & 1 & 4 & 5 \\ -1 & 3 & 2 & 1 \\ -3 & 2 & 6 & 3 \end{bmatrix} \Rightarrow \sum_{n=2}^3 (a_{2n} + a_{n3}) = ?$

- A) 10    B) 11    C) 12    D) 13    E) 14

$K + L = ?$

- 23, 2, 11, 19, 3, L, 17, 5, 13  
 30. 1, 4, 5, 9, 6, 2, K, 3, 8

- A) 9    B) 14    C) 17    D) 23    E) 42

3.  $A = \begin{bmatrix} x & 2 \\ 2 & -x \end{bmatrix}$  ve  $A^2 = \begin{bmatrix} -5 & 12 \\ -5 & -12 \end{bmatrix} = x = ?$

- A) -3    B) -2    C) 2    D) 3    E) 6



2.  $\begin{bmatrix} a & 1 \\ b & 3 \end{bmatrix} + \begin{bmatrix} -a & 2 \\ 6 & 5 \end{bmatrix} = \begin{bmatrix} 4 & 3 \\ 6 & 5 \end{bmatrix} \Rightarrow a \cdot b = ?$

- A) -10    B) -5    C) 0    D) 5    E) 10

4.  $f(x) = x^2 + 2x - 1$ ,  $A = \begin{bmatrix} 1 & 2 \\ -1 & 1 \end{bmatrix} \Rightarrow f(A) = ?$

- A)  $\begin{bmatrix} 3 & -4 \\ -2 & 3 \end{bmatrix}$
- B)  $\begin{bmatrix} -2 & 4 \\ 2 & -2 \end{bmatrix}$
- C)  $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
- D)  $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$
- E)  $\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$

7.  $\begin{vmatrix} a & a-1 \\ 2 & 4 \end{vmatrix} = 16 \Rightarrow a = ?$

- A) 5
- B) 6
- C) 7
- D) 8
- E) 9

5.  $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix} \Rightarrow A + A^T = ?$

- A)  $\begin{bmatrix} 3 & 1 \\ -2 & 2 \end{bmatrix}$
- B)  $\begin{bmatrix} 6 & 0 \\ 0 & 4 \end{bmatrix}$
- C)  $\begin{bmatrix} 3 & -1 \\ -1 & 2 \end{bmatrix}$
- D)  $\begin{bmatrix} 6 & 1 \\ 1 & 4 \end{bmatrix}$
- E)  $\begin{bmatrix} 3 & 1 \\ 1 & 2 \end{bmatrix}$

8.  $A = \begin{bmatrix} -1 & 2 & 0 \\ 1 & 3 & -1 \\ 2 & 4 & 5 \end{bmatrix} \Rightarrow \det A = ?$

- A) -33
- B) -27
- C) -19
- D) -14
- E) -5

6.  $A = \begin{bmatrix} 2 & 1 \\ 5 & 3 \end{bmatrix}$ ,  $A^{-1} + A^T = \begin{bmatrix} a & b \\ c & d \end{bmatrix} \Rightarrow a + b + c + d = ?$

- A) 6
- B) 7
- C) 8
- D) 9
- E) 10

9.  $\begin{bmatrix} 2000 & 2001 & 2002 \\ 2003 & 2004 & 2005 \\ 2006 & 2007 & 2008 \end{bmatrix} = ?$

- A) -2008
- B) -2007
- C) 0
- D) 2007
- E) 2008



9.

8.

7.

$$10. A = \begin{vmatrix} 4 & 5 & 6 \\ 1 & 2 & 3 \\ x & y & z \end{vmatrix} = \begin{vmatrix} 4 & 5 & 6 \\ 1 & 2 & 3 \\ x-3 & y-3 & z-3 \end{vmatrix}$$

- A) A-3  
B) A+3  
C) -A  
D) 3A  
E) A

13.  $P(x) = 2x^3 - (m+1)x^2 + (n-1)x + 3$  polinomunun  $x^2 - x + 3$  ile bölümünden kalan  $-4x + 9$  olduğuna  $m + n$  kaçtır?

$-4x + 9$  is the remainder from the division of the polynomial  $P(x) = 2x^3 - (m+1)x^2 + (n-1)x + 3$  by  $x^2 - x + 3$ . What is  $m+n$ ?

- A) 5  
B) 6  
C) 7  
D) 8  
E) 9

$$11. \frac{2^{x-y} + 2^x - 2^y - 1}{2^x - 1} = 33 \Rightarrow y = ?$$

- A) -6  
B) -5  
C) -4  
D) -3  
E) -2

$$f(x) = \begin{cases} 5x + 3, & x > 3 \\ -15, & x = 3 \\ 7x + 2, & x < 3 \end{cases} \Rightarrow f^{-1}(16) = ?$$

- A) -3  
B) -2  
C) -1  
D) 1  
E) 2

14. R de tanımlı  $y=f(x)$  fonksiyonu  $[-1, 1]$  ve örtendir.  $f(x)$ : injective and surjective function.

15.  $x^2 - 6x + 4 = 0$  dekleminin kökleri a ve b dir. Buna göre, kökleri  $\frac{b-2}{a}$  ve  $\frac{a-2}{b}$  olan ikinci dereceden olan ikinci dereceden hangisidir?

The roots of the equation  $x^2 - 6x + 4 = 0$  are a and b. So what is the quadratic with roots  $\frac{b-2}{a}$  and  $\frac{a-2}{b}$ ?

- A)  $x^2 - 3x + 2$   
B)  $x^2 + 3x - 2$   
C)  $x^2 - x + 4 = 0$   
D)  $x^2 + x - 4 = 0$   
E)  $x^2 + 4x - 1 = 0$

12.  $x, y, z \in \mathbb{R}$ .  $2x$  sayısının  $5y$  sayısına olan uzaklığı A,  $3y$  sayısının  $-7z$  sayısına olan uzaklığı B dir.  $A + B$  toplamı en küçük değerin alındığında  $\frac{x}{x+y}$  oranı kaçtır?

The distance of  $2x$  from the number  $5y$  is A, and the distance from the number  $3y$  to  $-7z$  is B. What is the  $\frac{x}{x+y}$  ratio when the  $A + B$  total takes its smallest value?

- A)  $-\frac{5}{37}$   
B)  $-\frac{6}{49}$   
C)  $-\frac{8}{41}$   
D)  $\frac{9}{52}$   
E)  $\frac{11}{42}$

16.  $y = x^2 - 4ax + a + 1$  parabolünün tepe noktalarının geometrik yeri aşağıdakilerden hangisidir ?  
 Which of the following is the geometric location of the vertices of the  $y = x^2 - 4ax + a + 1$  parabola?
- A)  $y = -x^2 - 4ax + a + 1$   
 B)  $y = -x^2 + \frac{x}{2} + 1$   
 C)  $y = x^2 + x + 1$   
 D)  $y = -x^2 - 2x + 1$   
 E)  $y = -x^2 + x - 2$

17.  $x^2 - (m+1)x - 2m - 2 = 0$  denkleminin ayrı iştirakli iki gerçel kökü olduğuna göre,  $m$  nin en geniş tanım aralığı aşağıdakilerden hangisidir ?  
 Since the equation has two real roots with the same sign, which of the following is the widest domain of  $m$ ?
- A)  $(-\infty, -1)$   
 B)  $(-\infty, -9)$   
 C)  $(-\infty, -9]$   
 D)  $[-9, -1)$   
 E)  $[-9, \infty)$

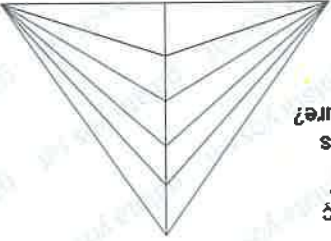
18.  $18x = \pi$  olduğuna göre  
 $\frac{\sin 2x - \sin 6x + \sin 10x}{\cos 2x - \cos 6x + \cos 10x} = ?$
- A)  $-1$   
 B)  $-\frac{1}{2}$   
 C)  $\frac{\sqrt{3}}{2}$   
 D)  $1$   
 E)  $\sqrt{3}$

19. Üç basamaklı sayıların kaç tanesinin en az bir basamağında 3 vardır ?  
 How many three-digit numbers have a 3 in at least one digit?
- A) 210  
 B) 224  
 C) 252  
 D) 288  
 E) 292

20.  $\begin{pmatrix} 10 \\ 2 \end{pmatrix} + \begin{pmatrix} 10 \\ 3 \end{pmatrix} + \begin{pmatrix} 11 \\ 4 \end{pmatrix} + \begin{pmatrix} 12 \\ 5 \end{pmatrix} = ?$

- A)  $\begin{pmatrix} 6 \\ 11 \end{pmatrix}$   
 B)  $\begin{pmatrix} 5 \\ 12 \end{pmatrix}$   
 C)  $\begin{pmatrix} 6 \\ 12 \end{pmatrix}$   
 D)  $\begin{pmatrix} 4 \\ 13 \end{pmatrix}$   
 E)  $\begin{pmatrix} 5 \\ 13 \end{pmatrix}$

21. Yandaki şekilde kaç tane üçgen vardır ?  
 How many triangles are there in the figure?



- A) 35  
 B) 60  
 C) 56  
 D) 42  
 E) 84

22.  $\left( \frac{x^4 - 4x^2 + 4}{x^2 + 4} \right)^3$

agliminda sabit terim kaçtır ?

What is the constant term in expansion?

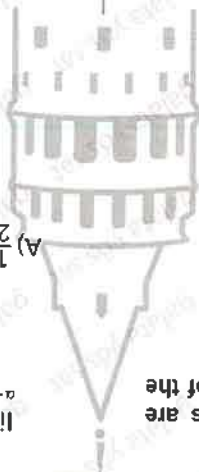
- A) -96 B) 120 C) 80 D) -120 E) -160

25.  $\frac{\log_a x}{\log_a x^3} - \log_a \sqrt[3]{bc} = ?$

- A)  $\frac{6}{1}$  B)  $\frac{3}{1}$  C)  $\frac{2}{1}$  D) 1 E) 3

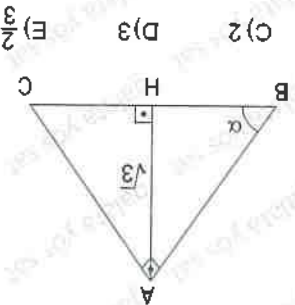
23. 3 negatif, 4 pozitif sayıdan üçü seçiliyor. Seçilen sayıların çarpımının pozitif olasılığı kaçtır ?  
Three of the 3 negative and 4 positive numbers are chosen. What is the probability that the product of the selected numbers is positive?

- A)  $\frac{35}{3}$  B)  $\frac{1}{7}$  C)  $\frac{35}{16}$  D)  $\frac{35}{12}$  E)  $\frac{1}{5}$



$\lim_{x \rightarrow \frac{2}{3}} |f(x)| = ?$

- A)  $\frac{1}{2}$  B)  $\frac{3}{3}$  C) 2 D) 3 E)  $\frac{3}{2}$



27.  $y = x$  doğrusunun A(1, 9) noktasına en yakın noktasının ordinatı kaçtır ?  
What is the ordinate of the closest point of the line  $y = x$  to point A (1, 9)?

- A) 6 B) 5 C) 4 D) 3 E) 2

24.  $|z - 2 + 2i| = |z + i|$  koşulunu sağlayan  $z$  karmaşık sayısının geometrik yer denklemini nedir ?  
What is the geometric location equation for the complex number  $z$  that satisfies the condition  $|z - 2 + 2i| = |z + i|$ ?

- A)  $y - x = 0$   
B)  $y + 4x + 9 = 0$   
C)  $y - x + 8 = 0$   
D)  $2y - 4x + 7 = 0$   
E)  $2y + 4x + 17 = 0$



28.  $z^3 + 27i = 0$  denkleminin köklerinden birisi  $z^3 + 27i = 0$  denkleminin köklerinden birisi aşağıdakilerden hangisidir?  
Which of the following is one of the cube roots of the equation  $z^3 + 27i = 0$ ?

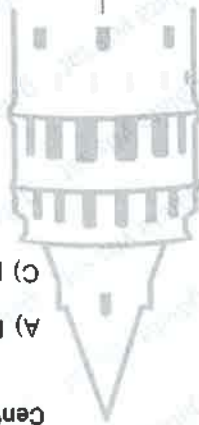
- A)  $3\sqrt[3]{\frac{2}{31}}$  B)  $\frac{2}{\sqrt{3}} + \frac{1}{2}$  C)  $3\sqrt[3]{\frac{1}{2} + \frac{1}{2}}$   
D) 4! E)  $\frac{2}{31}$

29.  $\int_0^1 |x^2 - x - 6| dx = ?$

- A)  $\frac{6}{81}$  B)  $\frac{3}{25}$  C)  $\frac{6}{71}$  D)  $\frac{6}{61}$  E) 10

30.  $\int_2^0 \sqrt{16-x^2} dx = ?$

- A)  $\frac{4\pi}{5} + 2\sqrt{3}$  B)  $\frac{3}{4\pi} + 2\sqrt{3}$  C)  $3\pi + 2\sqrt{3}$   
D)  $\frac{3}{4\pi} + 3\sqrt{2}$  E)  $4\pi + 3\sqrt{2}$



2.

$$(x-12)^2 + (y-9)^2 = 49$$

olan çemberin merkezi ve r=?  
Center and Radius = ?

- A) M(12, 9), r=7  
B) M(12, 9), r=3  
C) M(-12, -9), r=7  
D) M(12, -9), r=7  
E) M(12, 9), r=12

3.

$$(x-3)^2 + (y+2)^2 = k$$

çemberin merkezi orijinden geçtiğine göre k kaçtır?  
since the center of the circle passes through the origin, k = ?

- A) 4 B) 9 C)  $\sqrt{13}$  D)  $2\sqrt{13}$  E) 13

4.  $2x^2 + 2y^2 - 8x + 12y - 24 = 0$

denklemini sağlayan çemberin çapı nedir?  
what is the diameter of the circle that satisfies the equation?

- A) 4 B) 5 C) 6 D) 10 E) 12

7.  $3x^2 + 3y^2 - 6x + 6y + 3m - 9 = 0$  denkleminin çember

belirtmesi için  $m$ 'nin alabileceği en büyük tam sayı değeri kaçtır?

What is the maximum integer value  $m$  can take for the equation to indicate a circle?

- A) 2 B) 3 C) 4 D) 5 E) 6

5. I.  $x^2 + y^2 + 7x - 8y = 0$

II.  $x^2 + y^2 = 64$

III.  $(x - 3\sqrt{3})^2 + (y - \sqrt{5})^2 = 32$

hangi çember ortinden geçer?  
Which circle goes through the origin?

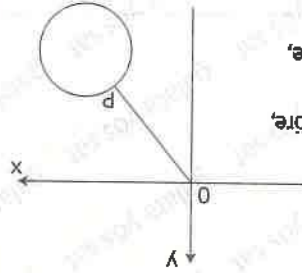
- A) I. ve II.  
B) I. ve III.  
C) yalnız II.  
D) II. ve III.  
E) I. II. III.

6.  $(x - 7)^2 + (y + 24)^2 = 49$

olan çemberde P noktası  
çemberin üzerindeki bir noktadır.

min |OP| = ?  
Since the point P is on the circle,

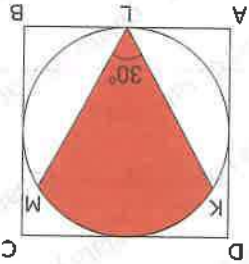
min |OP| = ?



- A) 25 B) 24 C) 18 D) 14 E) 7

9.

ABCD; kare  
|BC| = 16  
 $m(\widehat{KLM}) = 30^\circ$   
Taralı alan = ?  
Shaded area = ?



- A)  $32 + \frac{3}{2}\pi$   
B)  $\frac{3}{2}\pi + 16$   
C)  $\frac{3}{2}\pi$   
D)  $\frac{3}{2}\pi + 36$   
E)  $\frac{3}{2}\pi + 64$

8.

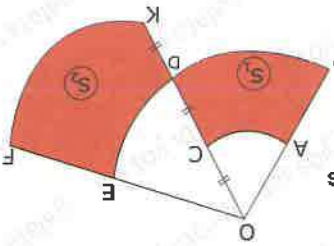
O; dilimlerin ortak merkezi

O; common center of slices

$|OC| = |CD| = |DK|$

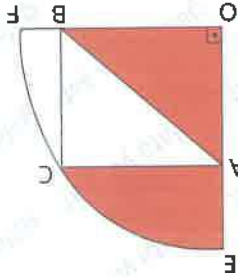
$m(\widehat{KOF}) = 2 m(\widehat{BOD})$

$\frac{S_1}{S_2} = ?$



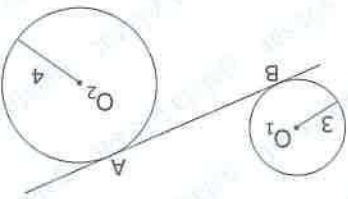
- A)  $\frac{5}{3}$   
B)  $\frac{5}{4}$   
C) 1  
D)  $\frac{10}{3}$   
E)  $\frac{5}{2}$

10. O: çeyrek dairenin merkezi / O: center of the quarter circle  
 OBCA; kare / OBCA; square  
 Taralı alan / (çeyrek dairenin) / Shaded area  
 $\frac{\text{Taralı alan}}{A(\text{çeyrek dairenin})} = ?$   
 $\frac{\text{Shaded area}}{\text{Area of the quarter circle}} = ?$



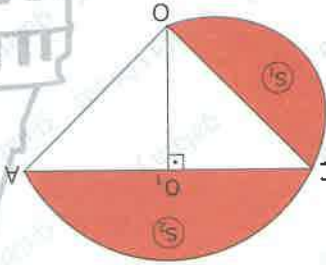
- A)  $\frac{1}{2}$  B)  $\frac{1}{3}$  C)  $\frac{1}{4}$  D)  $\frac{1}{5}$  E)  $\frac{3}{2}$

13. A ve B teğet noktalar / A, B: tangent points  
 $|O_1O_2| = ?$   
 $|AB| = 24$



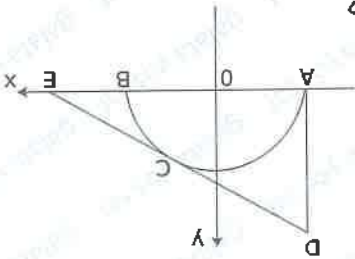
- A) 18 B) 20 C) 24 D) 25 E) 30

11. O: AC çemberin merkezi / O: center of AC circle  
 O1: OC çemberin merkezi / O1: Center of OC circle  
 $[AC] \perp [OO_1]$   
 $\frac{S_1}{S_2} = ?$



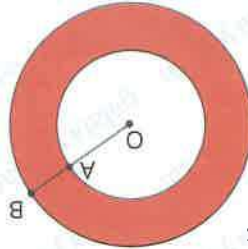
- A)  $\frac{1}{3}$  B)  $\frac{1}{2}$  C) 1 D) 2 E) 3

14. O: merkezi dik koordinat düzleminde / O: center  
 $|AO| = 2$   
 $|DC| = 4$   
 A ve C: teğet noktalar / A and C: tangent points  
 E'nin koordinat toplamı? / coordinate sum of E?



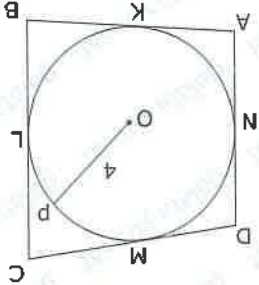
- A) 3 B) 3,5 C)  $\frac{3}{10}$  D) 4 E)  $\frac{2}{9}$

12. O: dairenin ortak merkezi; / O: common center of the circles.  
 $\frac{|OA|}{|OB|} = \frac{7}{3}$   
 Taralı alan 80'ise büyük dairenin yarıçapı nedir? / If the shaded area is 80π what is the radius of the big circle?



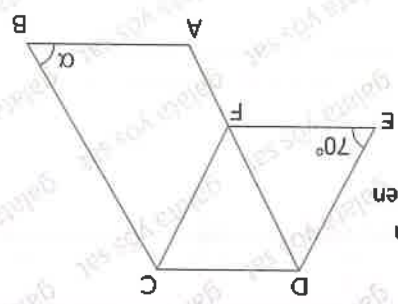
- A) 3 B) 4 C) 7 D)  $7\sqrt{2}$  E)  $10\sqrt{2}$

15. ABCD: teğetler dörtgeninde / ABCD: tangent quadrilateral  
 O: çemberin merkezi / O: Center of the circle  
 $|OP| = 4$   
 $|AK| + |BL| + |CM| + |DN| = 13$   
 $A(ABCD) = ?$



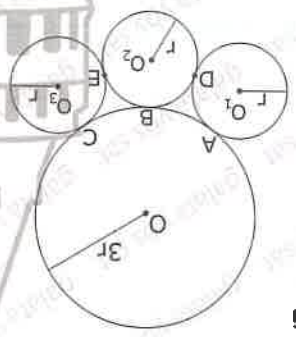
- A) 26 B) 39 C) 52 D) 60 E) 104

18. ABCD; paralelkenar  
 ABCD; paralellogram  
 CDEF; eşkenar dörtgen  
 CDEF; rhombus  
 $m(\widehat{DEF}) = 70^\circ$   
 $m(\widehat{ABC}) = \alpha = ?$



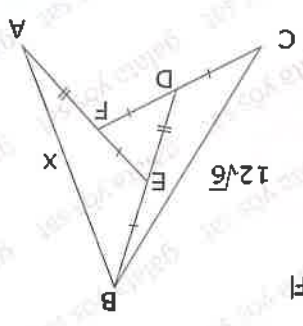
- A) 55 B) 70 C) 85 D) 100 E) 125

17.  $O_1, O_2, O_3$  gemerin merkezi  
 $O_1, O_2, O_3$  teget noktalar  
 A, B, C, D, E; teget noktalar  
 $m(\widehat{AB}) = 68^\circ$   
 $m(\widehat{CB}) = ?$



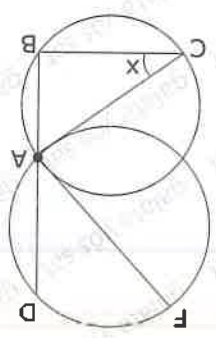
- A) 34 B) 35 C) 56 D) 60 E) 68

20.  $|BE| = |EF| = |CD| = |DF|$   
 $|ED| = |AF|$   
 $|BC| = 12\sqrt{6}$   
 $|AB| = x = ?$



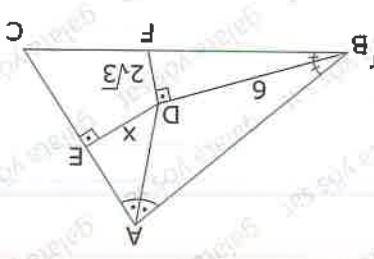
- A)  $3\sqrt{6}$  B)  $4\sqrt{6}$  C)  $6\sqrt{6}$  D)  $12\sqrt{6}$  E)  $24\sqrt{6}$

16. İki çember A noktasında  
 dik kesişiyor.  
 The two circles intersect  
 at point A perpendicularly.  
 $m(\widehat{AD}) = 100$   
 $[FA] \vee [AC]$  teget doğrular  
 $[FA]$  and  $[AC]$  are tangent lines.  
 $m(\widehat{BCA}) = x = ?$



- A) 30 B) 40 C) 50 D) 80 E) 100

19. ABC üçgen  
 $[BD] \perp [DF]$   
 $[DE] \perp [AC]$   
 $[AD] \vee [BD]$  açıortay  
 $[AD]$  and  $[BD]$  bisector  
 $|DF| = 2\sqrt{3}$   
 $|BD| = 6$   
 $|DE| = x = ?$



- A) 2 B) 3 C) 4 D)  $4\sqrt{3}$  E)  $6\sqrt{3}$



# Başarıya Götüren



KTS-28

Mat	Problem 2 Problems	Mat	Matrices / Logos
IQ	Problem 1 Problem	IQ	Counting II / Right Angle &
Geo	Problem 3 / Volume	Geo	Konu Çalışma / Solid Bodies
			ve önceki konular / and previous topics

Mat	Integral / Integral	Mat	Permutation Kombinasyon
IQ	3 Boyutlu Cisim / 3D Object	IQ	Kesme - Kesilme / Cutting - Folding
Geo	Doğru Analizi / Right Analytics	Geo	Birebir / Symmetry
Mat	Matrix ve Determinant	Mat	Saatler - Üçgen Sayma
IQ	Clocks - Triangle Counting	IQ	Çemberin Analizi / Circle Analytics

Mat	Integral / Integral	Mat	Türev / Derivative
IQ	Şekil Karşılaştırma	IQ	Farklı Olam Bulma
Geo	Analitik Geometri / Analytical geometry	Geo	Dairesel Alan / Area in a circle
Mat	Şekil Karşılaştırma	Mat	Türev / Derivative
IQ	Şekil Karşılaştırma	IQ	Şekil İlişkileri Sorularına
Geo	Çemberde Uzunluk / Circle Length	Geo	Çemberde Alan / Area on Circle

Mat	Logaritma Türevlerim	Mat	Özel Tanımlı Fonksiyonlar
IQ	Şekil İlişkileri Sorularına	IQ	Şekil İlişkileri Sorularına
Geo	Dikdörtgen / Rectangular	Geo	Kare / Square
Mat	Limit, Sıra Sıra / Limit, Continuity	Mat	Çemberde Alan / Angle on Circle

Mat	Karmaşık Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry
IQ	Şekil İlişkileri Sorularına	IQ	KLM
Geo	Yamuk / Trapezoid	Geo	Eşkenar Dörtgen / Rhombus
Mat	Trigonometri / Trigonometry	Mat	Çevre - Alan / Environment - Area
IQ	Çevre - Alan / Environment - Area	IQ	Çevre - Alan / Environment - Area
Geo	Paralelkenar II / Parallel Edge II	Geo	Paralelkenar II / Parallel Edge II

Mat	Modüler Aritmetik	Mat	Polinom / Polynomial
IQ	Küp Sayma Tamamlama	IQ	Şekiller / Graphics
Geo	Polygonlar / Polygons	Geo	Dörtgen / Quadrilateral
Mat	İl. Dereceden Denklem	Mat	İl. Dereceden Denklem
IQ	Parabol Eşitlikleri	IQ	Parabol Eşitlikleri
Geo	Çizim / Graphics	Geo	Çizim / Graphics
Geo	Paralelkenar I / Parallelogram I	Geo	Paralelkenar I / Parallelogram I

Mat	İşlem / Operation	Mat	Karelerin Çarpımı ve Fonksiyonlar
IQ	Denklem Eşitlikleri / Equation Matching	IQ	Eşleştirme / Matching
Geo	Açı-Kenar İlişkisi / Angle-Side Relation in Triangle	Geo	Üçgenin Alanı / Area of Triangles
Mat	Karelerin Çarpımı ve Fonksiyonlar	Mat	Karelerin Çarpımı ve Fonksiyonlar
IQ	Eşleştirme / Matching	IQ	Eşleştirme / Matching
Geo	Üçgenin Alanı / Area of Triangles	Geo	Üçgenin Alanı / Area of Triangles
Mat	Kıvraklar / Sets	Mat	Kıvraklar / Sets
IQ	Çizim / Scales	IQ	Çizim / Scales
Geo	Üçgenin Alanı / Area of Triangles	Geo	Üçgenin Alanı / Area of Triangles

Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers
IQ	Sayı Bağlantıları / Number Relations	IQ	Tablolar / Tables
Geo	Konveks / Medium	Geo	Üçgenin Alanı / Area of Triangles
Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers
IQ	Sayı Bağlantıları / Number Relations	IQ	Tablolar / Tables
Geo	Konveks / Medium	Geo	Üçgenin Alanı / Area of Triangles
Mat	Oran Orantı / Ratio and Proportion	Mat	Oran Orantı / Ratio and Proportion
IQ	Tablolar / Tables	IQ	Tablolar / Tables
Geo	Üçgenin Alanı / Area of Triangles	Geo	Üçgenin Alanı / Area of Triangles

Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Çarpımların Ayrımı / Factorization
IQ	Basit Eşitsizlik ve Mutlak Değer	IQ	Çarpımların Ayrımı / Factorization
Geo	İkizkenar / Isosceles and Equilateral Triangle	Geo	İkizkenar ve Eşkenar Üçgen
Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Çarpımların Ayrımı / Factorization
IQ	Basit Eşitsizlik ve Mutlak Değer	IQ	Çarpımların Ayrımı / Factorization
Geo	İkizkenar / Isosceles and Equilateral Triangle	Geo	İkizkenar ve Eşkenar Üçgen
Mat	Küçük Sayılar / Radical Expressions	Mat	Küçük Sayılar / Radical Expressions
IQ	İşlem / Operations	IQ	İşlem / Operations
Geo	Dik Üçgen (Köklü) / Right Triangle	Geo	Dik Üçgen (Köklü) / Right Triangle

Mat	İşlem / Operation and Rational Numbers	Mat	İl. Dereceden Denklem
IQ	Şifreler / Passwords	IQ	Sayı Örüntüleri / Number patterns
Geo	Açılar / Angles	Geo	Üçgenin Alanı / Angles in triangles
Mat	İşlem / Operation and Rational Numbers	Mat	İl. Dereceden Denklem
IQ	Şifreler / Passwords	IQ	Sayı Örüntüleri / Number patterns
Geo	Açılar / Angles	Geo	Üçgenin Alanı / Angles in triangles
Mat	İl. Dereceden Denklem	Mat	İl. Dereceden Denklem
IQ	Sayı Örüntüleri / Number patterns	IQ	Sayı Örüntüleri / Number patterns
Geo	Üçgenin Alanı / Angles in triangles	Geo	Üçgenin Alanı / Angles in triangles



10

1.

	14	12	
x			16

Yükarıdaki tabloda boş kutulara 0,1,15,18,19,20 sayıları yazılacaktır. Bu sayılar kutulara yazılırken satır, sütun ve köşegen toplamının eşit olması koşuluyla uyumludur. Buna göre x kaçtır ?

In the above table, the numbers 0,1,15,18,19,20 will be written in the empty boxes. While these numbers are written in the boxes, the condition that the sum of rows, columns, and diagonals are equal must be observed. So what is x?

- A) 11 B) 13 C) 18 D) 19 E) 20

2.

5				12
6	4			
		y		
		z		

Yükarıda verilen tabloya 1 den 16 ya kadar olan sayılar boş kutucuklara aşağıda eşit kurallara göre yerleştiriliyor.

- Her kutucukta ayrı bir sayı kullanılacaktır.
- Her sütundaki sayıların toplamı eşit olacaktır.
- Kutucuklardaki sayılar yukarıdan aşağıya doğru artacaktır. Buna göre;  $x + y + z = ?$

In the above table, numbers from 1 to 16 are placed in empty boxes according to the rules given below. A different number will be used in each box. The sum of the numbers in each column will be equal. The numbers in the boxes will increase from top to bottom.

- A) 36 B) 37 C) 38 D) 39 E) 40

1



3.

x		15			
		23	4		y

Şekilde verilen 5 x 5 kareye 1 den 25'e kadar olan sayılar birer kez kullanılarak yerleştirildiğinde her satırın ve sütunun toplamları eşit olacaktır. Buna göre  $x + y = ?$

When the numbers from 1 to 25 are placed on the 5 x 5 squares given in the figure, the sums of each row and column are equal.

$$= x + y = ?$$

- A) 20 B) 21 C) 22 D) 23 E) 24

A		
B		
C		

Şekilde verilen 3 x 3 kareye 1 den 9'a kadar olan sayılar birer kez kullanılarak yerleştirildiğinde her satırın ve sütunun toplamları eşittir. Buna göre  $A+B+C = ?$

When the numbers from 1 to 9 are placed into the square with 3x3 in the figure given by used once, sum of every line and column is equal.

$$\Rightarrow A+B+C = ?$$

- A) 13 B) 14 C) 15 D) 16 E) 17

5.

G	A	8
7	L	T
Y	9	S

1'den 9'a kadar olan rakamlar her bir satır, sütun ve köşegendeki sayıların toplamı 15 olacak şekilde yukarıdaki tabloya yerleştiriliyor. Buna göre  $G+T+S = ?$  is 15.  
 $\Rightarrow G+T+S = ?$   
 sum of each row, column and the numbers on the diagonal is 15.

- A) 17 B) 16 C) 15 D) 14 E) 13

6.

	x	11
	17	
12		

Yukarıdaki tablounun boş kalan yerlerine 7, 8, 9, 10, 13, 15 sayıları satır, sütun toplamları eşit olacak şekilde yerleştiriliyor.  
 Buna göre "x" yerine hangi sayı gelmelidir ?

In the above table, the numbers 7, 8, 9, 10, 13, 15 will be placed in the empty places in a row and the sum of the columns will be equal.  
 Accordingly, which number will replace "x"?

- A) 7 B) 8 C) 9 D) 10 E) 13

7.

		z
	y	
x		

Yukarıdaki tabloda boş kutulara 8,9,10 ... 16 sayıları yazılacaktır. Satır, sütun ve köşegen toplamları eşit olması koşullu ile  $x+y+z = ?$   
 In the above table, the numbers 8,9,10 ... 16 will be written in the empty boxes. The conditions for equal rows and diagonal sums must be met.  
 $\Rightarrow x+y+z = ?$

- A) 34 B) 35 C) 36 D) 37 E) 38



			13
	14	A	
3		9	

Yukarıdaki tablounun satır, sütun ve köşegenindeki sayıların toplamı eşit olduğuna göre, A sayısı kaçtır ?  
 Since the sum of the rows, columns and diagonal numbers of this square is equal, what is the number A?

- A) 2 B) 4 C) 7 D) 8 E) 12

9. ve 10. sorular aşağıdaki bilgilere göre cevaplandırılacaktır.

Questions 9 and 10 will be answered according to the following information.

	P	
Q	R	

Yukarıdaki tabloya 1'den 9'dan kadar olan sayılar her kutucuga 1'er sayı gelecek şekilde yazılıyor.

In the table above, the numbers from 1 to 9 are written with 1 number in each box.

P bulundugu satir ve sutunun en buyuk sayisidir.

P is the largest number of the row and column in which it is located.

R ve Q bulundukari sutunlarin en kucuk sayilardir.

R and Q are the smallest numbers of columns in which they exist.

9.  $P + R + Q$  toplamı en az kac tir ?  
What is the minimum sum of  $P + R + Q$ ?

- A) 10 B) 9 C) 8 D) 7 E) 6

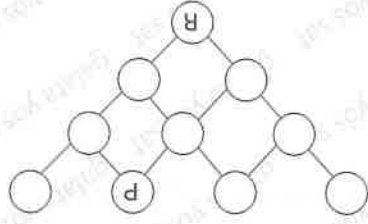
10.  $P + R + Q$  toplamı en fazla kac tir ?  
What is the maximum sum of  $P + R + Q$ ?

- A) 20 B) 19 C) 18 D) 17 E) 16

11.



12.

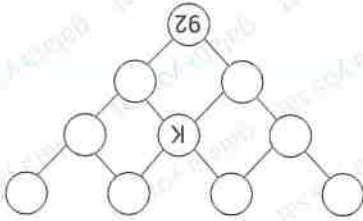


Yukarıdaki sayı üçgenine göre R'nin P cinsinden eşiti aşağıdakilerden hangisidir ?  
What is R in terms of P in the triangle above ?

- A)  $4P-6$  B)  $4P$  C)  $6P+10$   
D)  $8P+4$  E)  $8P-4$

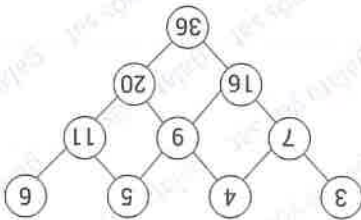
Yukarıdaki sayı üçgeninde K kac tir ?  
In the triangle of numbers above, what is K?

- A) 28 B) 27 C) 26 D) 23 E) 21



Satırdaki kutucuklara soldan sağa doğru artan ardışık sayılar yazılacaktır. Sonra yan yana olan iki sayının toplamı çizgilerin birleştiği alt satırdaki gembere yazılacaktır.

The numbers in the row will be written consecutive numbers increasing from left to right. Then the sum of the two numbers next to each other will be written on the circle in the bottom line where the lines meet, and the number triangle will be completed.



I. Satır / Line I

II. Satır / Line II

III. Satır / Line III

IV. Satır / Line IV

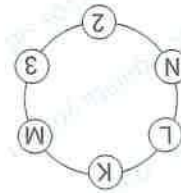
11. ve 12. sorular aşağıdaki bilgilere göre cevaplandırılacaktır. Questions 11 and 12 will be answered according to the information below.

Özellik Feature

Özellik Feature



13.



Yükarıdaki şekilde gösterilen dairede birer sayı vardır. Bu sayılardan her biri kendine komşu olan sayıların çarpımına eşit olduğuna göre;  $K+L+M+N = ?$

There is a number in each circle. Since each of these numbers is equal to the product of the numbers adjacent to it,

$$K + L + M + N = ?$$

- A) 1 B) 3 C) 5 D) 7 E) 9

14.

Boş bir abaküze 17 boncuk dizilerek aşağıdaki sayılardan hangisi oluşturulamaz?

Which of the following numbers cannot be formed by arranging 17 beads on an empty abacus?

- A) 57032 B) 90800 C) 27145 D) 333335 E) 54323

15.

Aşağıdaki abaküslerin hangisinde oluşturulan sayı; The number generated in which of the following abacuses,

3 ile tam bölünebilir / 3 divided by 3 complete

• tek sayı olma / being odd number

• 4 basamaklı olma / being 4 digits

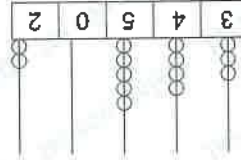
özelliklerinden hepsini sağlar ? provides 3 of the features ?

14. ve 15. sorular aşağıdaki bilgilere göre cevaplandırılacaktır.

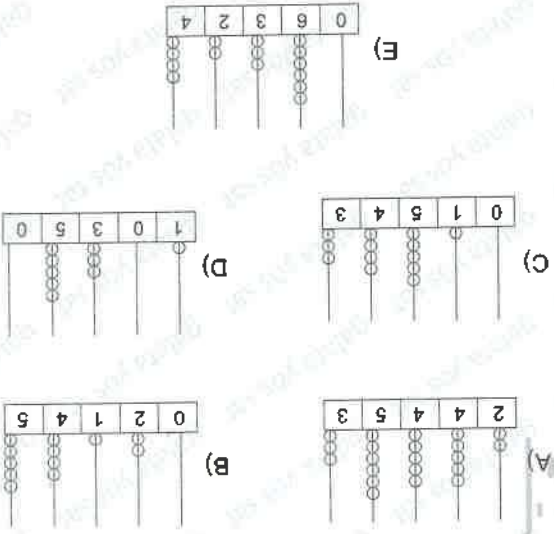
14th and 15th questions will be made according to the following feature.

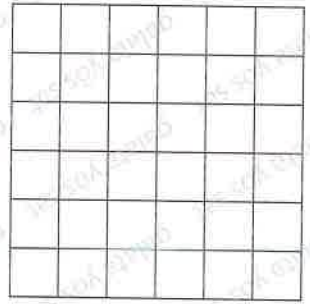
Bes çubuklu olan bir abaküsün her bir çubuğuna en fazla 9 tane boncuk dizilerek bir sayı oluşturuluyor, istenen çubuk boş bırakılıyor.

In an abacus with five sticks, a maximum of 9 beads is arranged on each rod and a number is formed. The desired rod is left blank.



örneğin yukarıdaki abaküze 14 boncuk dizilerek 34502 sayısı oluşturuluyor. For example, the number 34502 is created by arranging 14 beads in the above abacus.



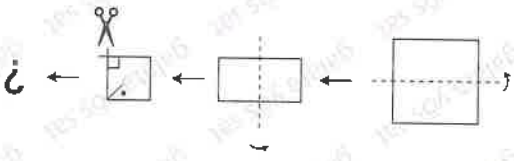


17.

Yükarıdaki şekil 36 birim kareden oluşmuştur. Alanı 12 br<sup>2</sup> olan kaç farklı dikdörtgen vardır?  
It consists of 36 unit squares. How many different rectangles are there in the square with an area of 12?

- A) 12 B) 24 C) 34 D) 36 E) 34

20.

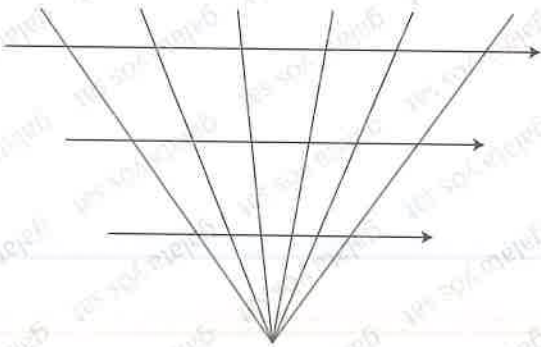


- A) 180 B) 192,5 C) 195,5 D) 200 E) 205,5

19. Saat 12:35 te akrep ile yelkovan arasındaki açi kaç derecedir?  
What is the angle between the hour and minute hand at 12:35 o'clock?

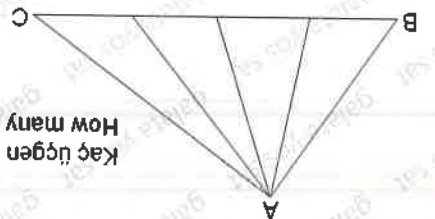
- A) 15 B) 18 C) 40 D) 45 E) 60

Şekilde paralel olan üç doğru ile bu doğrulari kesen 6 noktada doğru görülmektedir. Bu 9 doğru kaç üçgen belirtir?  
In the figure, three parallel lines and 6 points intersecting these lines are shown. How many triangles do these 9 lines indicate?



18.

16. Kaç üçgen vardır?  
How many triangles are there?



16.

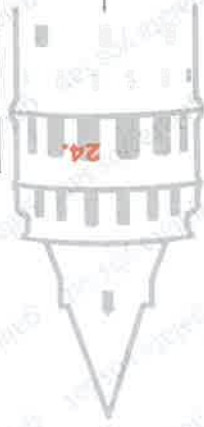
- A) 10 B) 12 C) 14 D) 16 E) 20



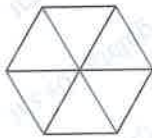
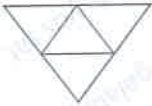
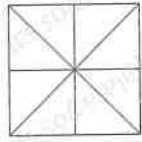
d	a	c	b
d	b	d	a
b	c	a	d
a	d	b	c

☆	○	▽	■
▽	Z	X	■
■	Y	○	☆
○	☆	■	▽

○	▽	☆
▽	☆	○
☆	■	▽
▽	■	☆
■	▽	☆
Z	Y	X



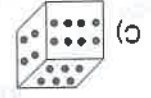
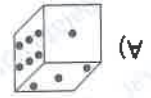
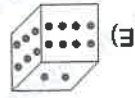
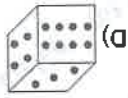
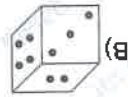
- A) 4, 6, 6  
B) 4, 8, 8  
C) 4, 4, 8  
D) 4, 8, 4  
E) 4, 4, 6



23.

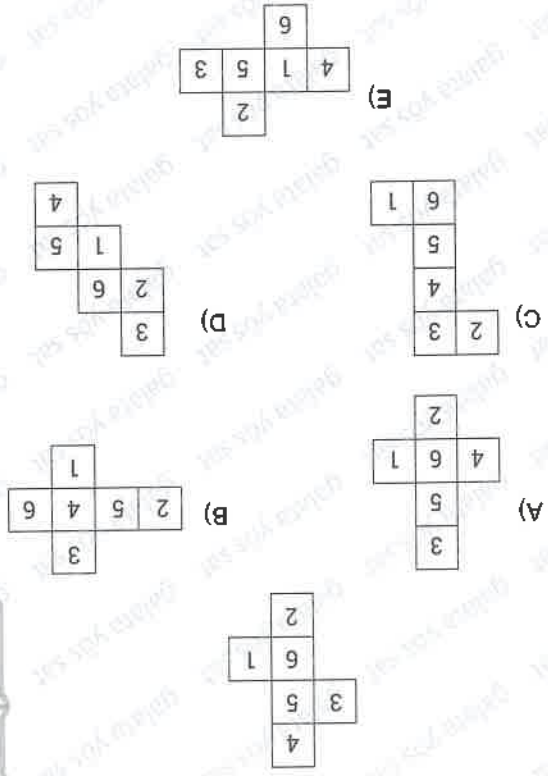
21. Yukarıdaki küpe götüren yüzeylerin karşı yüzeylerin de, görünmelerin 2 katı kadar nokta olduğuna göre, aşağıdakilerden hangisi bu küpün aynısıdır?

Since there are 2 times the dots on the opposite surfaces of the surfaces visible in the above cube, which of the following is the same as this cube?



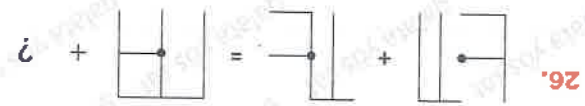
21.

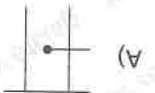
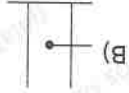
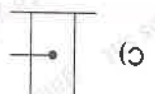
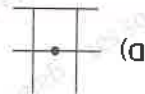

22.



25.  $6 \frac{3}{4} = 12$   
 $\frac{1}{11} \frac{3}{4} = \frac{3}{44}$   
 $8 \frac{4}{3} = 12$   
 $\frac{6}{5} \frac{3}{2} = ?$

- A)  $\frac{1}{13}$  B)  $\frac{3}{13}$  C)  $\frac{6}{13}$  D)  $\frac{6}{13}$  E) 13

26. 

- A)   
 B)   
 C)   
 D)   
 E) 

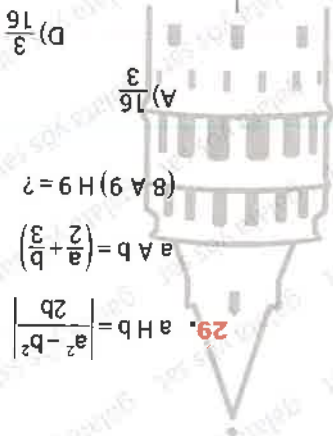
27.  $\frac{KLM}{971} + \frac{NLK}{399} = \frac{KLN}{?}$

- A) 634 B) 783 C) 731 D) 752 E) 682




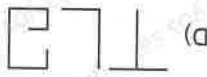

30.

TUZLAĞÖZÜ = UAÖÜZGLZT  
 KADİFEDEN = KDFDNIÉE  
 MERAKLISI = EKIISLARM  
 VALIKAVAK = ?

- A) AVAIKKAL B) KVKLYAIAA  
 C) AIAAKVKLY D) AAVIYKLLA  
 E) AVAIYKKAL

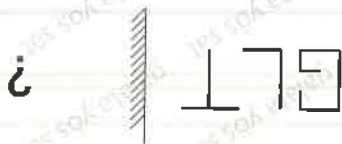


- A)  $\frac{3}{16}$  B)  $\frac{9}{32}$  C)  $\frac{16}{9}$  D)  $\frac{16}{3}$  E)  $\frac{16}{9}$

- A)   
 B)   
 C)   
 D)   
 E) 

Şeklin düzlem aynadaki görüntüsü aşağıdakilerden hangisidir?  
 Which of the following is the plane mirror image of the figure?

Düzlem Ayna / Plane Mirror



28.

1. Anne, Baba ve 6 çocuklu aile yuvarlak masa etrafında anne ile baba arasına çocuklardan biri oturmak üzere kaç farklı oturabilir?

How many different ways can a family, parent and 6 children sit around the round table, between the mother and the father one of the children sitting?

- A) 12.5i B) 5.5i C) 2.5i D) 5i E)  $\frac{5}{2}$

2. Birbiriinde farklı 2 kırmızı, 2 sarı, 2 mavı top yan yana sıralandıgında 2 mavı topun yan yana olma olasılıđı kaçtır?

When 2 red, 2 yellow and 2 blue balls are lined up, what is the probability that 2 blue balls are next to each other?

- A)  $\frac{3}{2}$  B)  $\frac{1}{2}$  C)  $\frac{5}{2}$  D)  $\frac{3}{1}$  E)  $\frac{1}{4}$

3. Aşağıdakilerden hangisi bir dizinin genel terimi olamaz? Which of the following cannot be the general term of a sequence?

- A) 0 B)  $\frac{n+1}{n}$  C)  $\frac{2n-1}{n^2}$  D)  $\frac{n^2-2}{n}$  E)  $\frac{n^2-1}{n^2}$
- A) 21 B) 39 C) 57 D) 68 E) 84

$$7. (a_n) = \left( \frac{2n^2 - 5n + 12}{n+2} \right)_{n \in \mathbb{Z}}$$

$a_n \in \mathbb{Z}$  için  $\sum_{n=1}^{\infty} a_n = ?$

8.

$$(a_{3n-2}) = \left( \frac{6n+2}{9n-2} \right)_{n \in \mathbb{Z}} \Rightarrow (a_n) = ?$$

- A)  $\frac{3n-2}{2n-2}$  B)  $\frac{3n+4}{2n+6}$  C)  $\frac{3n-1}{2n+4}$  D)  $\frac{2n+4}{3n-2}$  E)  $\frac{3n-9}{2n+6}$

5.  $a_n = \frac{3n+3}{2n+3} \Rightarrow a_5 - a_3 = ?$

- A)  $\frac{13}{9}$  B)  $\frac{117}{38}$  C)  $\frac{117}{78}$  D)  $\frac{117}{117}$  E)  $\frac{142}{117}$

6.  $a_n = \begin{cases} 2n-1, & n \text{ tek ise / odd} \\ 3n+2, & n \text{ çift ise / even} \end{cases} \Rightarrow 3 \cdot a_6 - 6a_3 = ?$

- A) 3 B) 6 C) 12 D) 24 E) 48

9. Genel terim  $(a_n) = \frac{n^2 + 3n + 2}{1}$  olan dizinin ilk 10 teriminin toplamı kaçtır ?

What is the sum of the first 10 terms of the sequence?

- A)  $\frac{11}{3}$  B)  $\frac{11}{3}$  C)  $\frac{12}{5}$  D)  $\frac{12}{7}$  E)  $\frac{4}{3}$

terimleri geometrik dizinin ardışık terimleridir.  
terms are sequential terms of the geometric sequence.

13.  $\left(\frac{3}{5}, a, b, c, d, \frac{96}{5}\right)$

$$\Rightarrow \frac{a+b}{c+d} = ?$$

- A) 1 B) 2 C) 3 D) 4 E) 6

10. İlk terimi -5 ve ortak farkı  $\frac{3}{4}$  olan aritmetik dizinin 15. terimi kaçtır ?

What is the 15th term of the Arithmetic sequence with the first term -5 and the common difference  $\frac{3}{4}$  ?

- A)  $\frac{3}{34}$  B)  $\frac{3}{38}$  C)  $\frac{3}{41}$  D)  $\frac{3}{43}$  E)  $\frac{4}{46}$

11. İkinci terimi 2 ve ortak garpanı  $\frac{1}{3}$  olan bir geometrik dizinin dördüncü terimi kaçtır ?

What is the fourth term of a geometric sequence with the second term 2 and the common factor  $\frac{1}{3}$  ?

- A)  $\frac{1}{3}$  B)  $\frac{9}{2}$  C)  $\frac{1}{3}$  D)  $\frac{3}{2}$  E) 3

12. Bir  $(a_n)$  aritmetik dizisinde  $a_n$  : aritmetik sequence

$$a_6 + a_7 = 38 \text{ ve } a_7 + a_8 = 64 \Rightarrow a_{12} = ?$$

- A) 60 B)  $\frac{121}{2}$  C) 62 D) 63 E)  $\frac{181}{2}$

16.  $\sum_{x=1}^{n-1} a \cdot \left(\frac{5}{4}\right)^x = 20 \Rightarrow a = ?$

- A) 9 B) 7 C) 5 D) 3 E) 1

15.  $\sum_{n=2}^{\infty} (3 \cdot 4^n - 2 \cdot 3^{2-2n}) = ?$

- A)  $-\frac{1}{3}$  B)  $-\frac{1}{4}$  C)  $-\frac{1}{1}$  D)  $-\frac{1}{12}$  E) 0



17.  $P(x)+P(1)+P(2)=x^2+x+2 = P(0)?$

- A) -4 B) -2 C) 0 D) 1 E) 4

21. Gerçel sayılarda tanımlı  $f(x)=3x^2-ax-b$  fonksiyonu nun grafiği  $x=1$  apsisi noktasında  $x$  eksenine teğettir. Buna göre,  $a \cdot b$  kaçtır?  
The graph of the function  $f(x)=3x^2-ax-b$  defined in real numbers is tangent to the  $x$  axis at the point with  $x=1$  abscissa, what is  $a \cdot b$ ?

- A) -24 B) -18 C) -12 D) -6 E) -3

22.

Dikdörtgen biçimindeki bir arsanın uzun kenarları 2 sıra, kısa kenarları 3 sıra tel ile çevrilmiştir. Bu işlem için 480 m tel kullanıldığına göre, bu arsanın en fazla kaç metrekaaredir?

The long sides of a rectangular plot are surrounded by 2 rows of wire and the short sides by 3 rows of wire. Since 480 m of wire is used for this process, how many square meters is this plot?

- A) 1600 B) 2400 C) 2500 D) 3000 E) 3600

19.  $x = e^{\tan t}$   $y = e^{\sec t}$   $\left\{ \begin{array}{l} x \text{ ile } y \text{ arasındaki bağıntı hangisidir?} \\ \text{What is the relation between } x \text{ and } y? \end{array} \right.$

- A)  $\ln^2 x + \ln^2 y = 1$   
B)  $\ln^2 x - \ln^2 y = 1$   
C)  $\ln^2 y - \ln^2 x = 1$   
D)  $\ln x - \ln y = 1$   
E)  $\ln x + \ln y = 1$

23.

$$\int_4^0 (4-x) dx = 4 = \int_0^4 f(x) dx = ?$$

- A) -4 B) -2 C) 0 D) 2 E) 4

24.  $g(x)$  doğrusal fonksiyon olmak üzere  $f/g(x)$ : linear function

$$f(x) = \begin{cases} 2x+4, & x < 0 \\ g(x), & 0 \leq x < 2 \\ 3x, & x \geq 2 \end{cases}$$

$f(x)$  fonksiyonu gerçel sayılarda sürekli olduğuna göre  $f(x)$  is continuous in real numbers.  
 $\Rightarrow \lim_{x \rightarrow 1} g(x) = ?$

- A) 3 B) 4 C) 5 D) 6 E) 7

- A) 3 B) 2 C) 1 D) -2 E) -3

$$\frac{6 \cos^2 2x - 3}{\cos 4x} = ?$$



25.  $!^2 = -1 = \frac{1+2i}{2} - \frac{1}{2} = ?$

- A) -2i B) -i C) 0 D) 2 E) 2i

26.  $a^2 - 2a + \frac{1}{4} = 0 \Rightarrow \left(\frac{1+2a}{2}\right)^2 = ?$

- A) 7 B) 6 C) 5 D) 4 E) 3

27.  $a \begin{bmatrix} 2 \\ 3 \end{bmatrix} + b \begin{bmatrix} 1 \\ 4 \end{bmatrix} = \begin{bmatrix} 2 \\ -2 \end{bmatrix} \Rightarrow a \cdot b = ?$

- A) 4 B) 2 C) -2 D) -4 E) -6

28.  $\alpha \in \left[0, \frac{\pi}{2}\right)$

$A = \begin{bmatrix} 2 & -1 \\ 4 \cos 2\alpha & -1 \end{bmatrix}$ ,  $B = \begin{bmatrix} 1 & \cos \alpha \\ 4 & -1 \end{bmatrix}$  ve

$\det A = \det B \Rightarrow \alpha = ?$

- A)  $\frac{1}{\pi}$  B)  $\frac{8}{\pi}$  C)  $\frac{6}{\pi}$  D)  $\frac{4}{\pi}$  E)  $\frac{3}{\pi}$

(A'B'C, ABC) dik üçgen prizma  
(A'B'C, ABC) right triangular prism

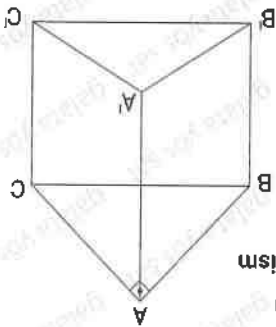
|BC| = 25

|B'A'| = 15

|BB'| = 50

üçgen prizmanın hacmi nedir ?

What is the volume of a triangular prism?



- A) 2250 B) 2500 C) 2700 D) 3500 E) 7500

30.

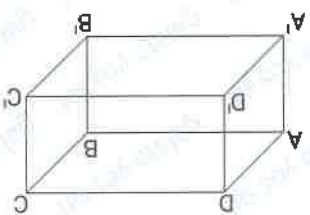
$\begin{vmatrix} a-3 & 5 \\ 2a & 4 \end{vmatrix} > 0 \Rightarrow \min(a \in \mathbb{Z}) = ?$

- A) -2 B) -1 C) 0 D) 1 E) 2

29.  $! = \sqrt{-1}$ ,  $A = \begin{bmatrix} 2+! & 1-! \\ 1+! & 2-! \end{bmatrix}^{2 \times 2} \Rightarrow \det(3A) = ?$

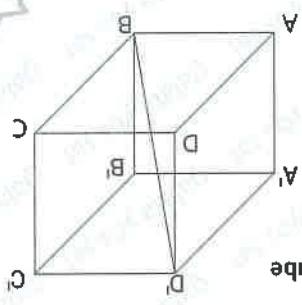
- A) 3 B) 9 C) 18 D) 27 E) 81

2. (A'B'C'D', ABCD) dikdörtgen prizma  
 |A'B'| = 7  
 |B'C'| = 8  
 |CC'| = 5  
 prizmanın alanı?  
 area of prism?



- A) 250 B) 260 C) 262 D) 270 E) 280

3. (ABCD, A'B'C'D') küp/cube  
 |BD'| =  $7\sqrt{3}$   
 küpün hacmi = ?  
 volume of cube = ?



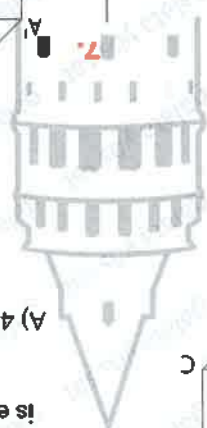
- A) 49 B)  $49\sqrt{3}$  C) 341 D) 343 E) 479

4. Hacmi  $625\pi$  yarığıpı 5 olan silindirin yanal alanı nedir?  
 What is the lateral area of the cylinder with volume  $625\pi$  and radius 5?

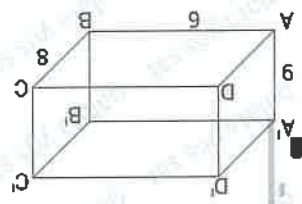


- A)  $100\pi$  B)  $125\pi$  C)  $225\pi$  D)  $250\pi$  E)  $500\pi$

7.

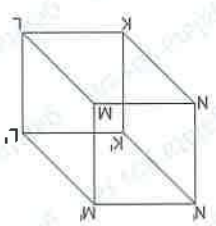


(ABCD, A'B'C'D') dikdörtgen prizmanın hacmi  $V_1$ : volume of rectangular prism  
 $V_1 = V_2$



- A) 12 B) 16 C) 18 D) 20 E) 24

$V_2$ : square prism volume  
 |KL| =  $3\sqrt{3}$   
 |M'L'| = ?

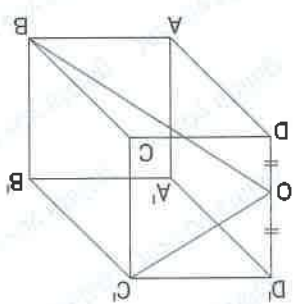


6.

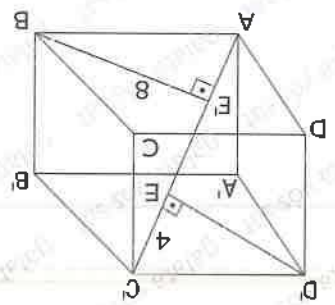
Hacmi yanal alanına eşit olan kare prizmanın taban alanı kaçtır?  
 What is the base area of a square prism whose volume is equal to its lateral area?

- A) 4 B) 8 C)  $4\sqrt{2}$  D) 16 E) 32

5. (ABCD, A'B'C'D') küp/cube  
 $|OD'| = |OD|$   
 $\frac{|OC'|}{|OB|} = ?$



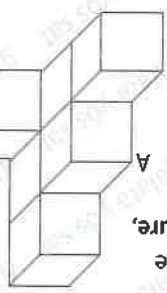
- A)  $\frac{4}{\sqrt{5}}$  B)  $\frac{3}{\sqrt{5}}$  C)  $\frac{2}{\sqrt{5}}$  D)  $\sqrt{5}$  E)  $2\sqrt{5}$



8.  $(ABCD, A'B'C'D')$  küp / cube  
 $|EC'| = 4, |BE| = 8$   
 $[D'E] \perp [AC'], [BE] \perp [AC']$   
 $|EE'| = ?$

- A) 8 B) 10 C) 12 D) 16 E) 18

9. Şekildeki birim küplerde  
 In unit cubes in the figure,  
 $|AA'| = ?$



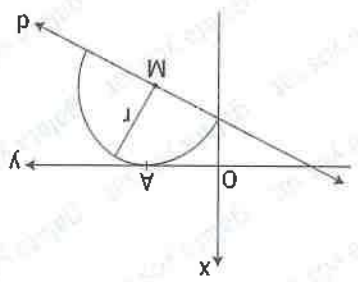
- A)  $2\sqrt{2}$  B)  $\sqrt{5}$  C)  $\sqrt{13}$  D)  $\sqrt{14}$  E)  $\sqrt{15}$

10.  $(x - 7)^2 + (y - 2)^2 = r^2$  olan çember  $3x + 4y + 1 = 0$  doğrusuna teğet olduğuna göre çemberin yarıçapı nedir ?

Since the circle with  $(x - 7)^2 + (y - 2)^2 = r^2$  is tangent to the line  $3x + 4y + 1 = 0$ , what is the radius of the circle?

- A) 4 B) 5 C) 6 D) 8 E) 10

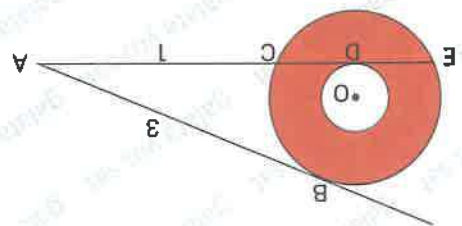
11. M merkezli çember A noktasında teğet olduğuna göre Since the circle centered M is tangent at point A,  $d : y = -\frac{\sqrt{3}x}{3} - 2\sqrt{2}$   $= r = ?$



- A)  $\sqrt{6}$  B)  $4\sqrt{2}$  C)  $6\sqrt{2}$  D)  $6\sqrt{3}$  E)  $12\sqrt{2}$

12.  $(x - 2)^2 + (y + 4)^2 = 1$  olan çemberin en yakın iki noktası arasındaki uzaklık nedir ?  
 What is the distance between the two closest points of the circle?

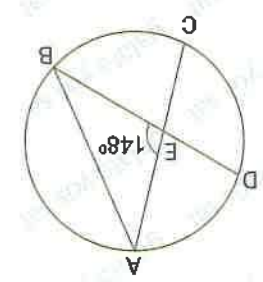
- A)  $\sqrt{2}$  B)  $4\sqrt{2}$  C)  $4\sqrt{2} - 2$   
 D)  $4 - \sqrt{2}$  E)  $4 + \sqrt{2}$



14. O; gemberlerin ortak merkezi  
 B ve D; teğet noktaları  
 B and D; tangent points  
 $|AB| = 3$   
 $|AC| = 1$   
 $TA = ?$   
 A)  $4\pi$  B)  $8\pi$  C)  $9\pi$  D)  $16\pi$  E)  $24\pi$



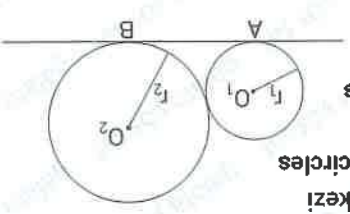
16.  $|AB| = |BD| = |AC|$   
 $m(\widehat{AEB}) = 148^\circ$   
 $m(\widehat{CD}) = ?$



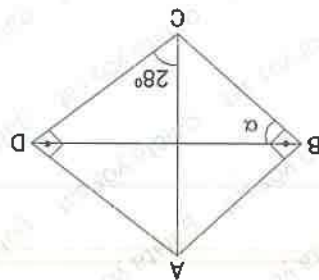
17. A) 64 B) 100 C) 112 D) 128 E) 132

13.  $(x-2)^2 + (y-8)^2 = 4$   
 olan gember üzzerindeki A(1,2) noktasında çizilen teğetin denklemini nedir?  
 What is the equation of the tangent drawn at point A(1,2) on the circle?  
 A)  $x+10y+19=0$  B)  $x+6y-13=0$  C)  $x-10y+19=0$  D)  $x-6y+13=0$  E)  $10x-y+21=0$

15.  $O_1$  ve  $O_2$  gemberlerin merkezi  
 $O_1$  and  $O_2$  center of the circles  
 A ve B teğet noktaları  
 A and B tangent points  
 $|O_1O_2| = 25$   
 $|AB| = 20$   
 $r_2 - r_1 = ?$   
 A) 5 B) 10 C) 15 D) 20 E) 25

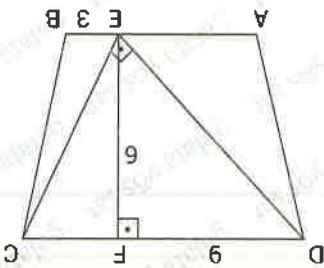


17. ABCD dörtgeninde  
 $[AB] \perp [BC]$   
 $[AD] \perp [CD]$   
 $m(\widehat{ACD}) = 28^\circ$   
 $m(\widehat{CBD}) = \alpha = ?$



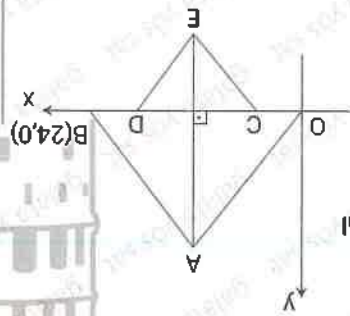
- A) 28 B) 42 C) 56 D) 62 E) 132

19.  $[AB] \parallel [CD]$   
 $[AD] = [BC]$   
 $[CE] \perp [DE]$   
 $[EB] = 3$   
 $[EF] = 6$   
 $[DF] = 9$   
 $[AE] = ?$



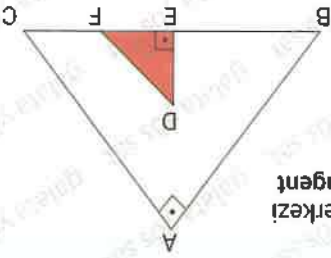
- A) 3 B) 5 C) 6 D) 8 E) 9

18. AOB ve CDE bir eşkenar üçgen  
 AOB and CDE an equilateral triangle  
 $\frac{A(\widehat{AOB})}{A(\widehat{CDE})} = \frac{4}{9}$   
 $E(?, ?)$



- A)  $(12, -8\sqrt{3})$  B)  $(4\sqrt{3}, -6)$  C)  $(12, -2\sqrt{3})$  E)  $(12, \sqrt{3})$

20. ABC bir dik üçgen  
 ABC right triangle  
 D: içteğet çemberinin merkezi  
 D: center of the inner tangent circle  
 $[AB] \perp [AC]$   
 $[DE] \perp [EF]$   
 $[DE] = 4$   
 $[AB] = 18$   
 $[AC] = 20$   
 $[FC] = 13$   
 $C(\widehat{DEF}) = ?$



- A) 10 B) 12 C) 17 D) 24 E) 34



# Başarıya Götüren



KTS-29

Mat	Matematik / Logic	Matematik / Problem	Matematik / Problem
IQ	Problem / Problem	Problem / Problem	Problem / Problem
Geo	Kıvrık Cisimler / Rigid Bodies	Kıvrık Cisimler / Rigid Bodies	Kıvrık Cisimler / Rigid Bodies
Mat	Diziler - Seriler / Sequences and series	Diziler - Seriler / Sequences and series	Diziler - Seriler / Sequences and series

Mat	Permutasyon Kombinasyon	Matris - Determinant	Matris ve Determinant
IQ	Kesme - Kesim / Cutting - Folding	Saatler - Üçgen Sayma	Saatler - Üçgen Sayma
Geo	Simetri / Symmetry	Gemini Analizi / Circle Analytics	Gemini Analizi / Circle Analytics

Mat	Integral / Integral	Türev / Derivative	Türev / Derivative
IQ	Şekli Karşılaştırma	Farklı Olun Bulma	Farklı Olun Bulma
Geo	Analitik Geometri / Analytical geometry	Daire Alan / Area in a circle	Daire Alan / Area in a circle

Mat	Logaritma Türevim	Özel Tanım Fonksiyonlar	Limit, Sınırlama / Limit Continuity
IQ	Şekli İlişkileri Tablo	Şekli İlişkileri Tablo	Şekli İlişkileri Tablo
Geo	Dikdörtgen / Rectangular	Kare / Square	Gemide Alan / Angle on Circle

Mat	Karmaşık Sayılar / Complex numbers	Trigonometri / Trigonometry	Trigonometri / Trigonometry
IQ	Şekli İlişkileri Tanımlama	KLM	Çevre - Alan / Environment - Area
Geo	Yamuk / Trapezoid	Eğikler Dörtgen / Rhombus	Paralelkenar II / Parallel Edge II

Mat	Modüler Aritmetik	Polinom / Polynomial	İl Dereceden Denklem
IQ	Küp Sayma Tanımlama	Grafikler / Graphics	Grafikler / Graphics
Geo	Çokgenler / Polygons	Dörtgen / Quadrilateral	Paralelkenar I / Parallelgram I

Mat	İşlem / Operation	Kartzyen Çarpım ve Fonksiyonlar	Küme / Sets
IQ	Denklem Eşleştirmesi / Equation Matching	Eşleştirme / Matching	Tarazlar / Scales
Geo	Üçgenin Kenar İlişkisi	Üçgenin Alan / Area of Triangles	Üçgenin Alan / Area of Triangles

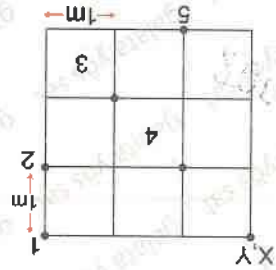
Mat	Doğal Sayılar / Natural numbers	Sayılar / Numbers	Oran Orantı / Ratio and Proportion
IQ	Sayı Başlangıçları / Number Relations	Tablolar / Tables	Tablolar / Tables
Geo	Konverans / Medium	Üçgenin Benzerlik	Üçgenin Benzerlik

Mat	Basit Eşitsizlik ve Mutlak Değer	Çarpınlar Ayrım / Factorization	Kıvrık Sayılar / Radical Expressions
IQ	Sayı Başlangıçları / Number Relations	İşlem / Operations	İşlem / Operations
Geo	Açıortay / Bisector	İkizkenar ve Eşkenar Üçgen	Dik Üçgen (Özel) / Right triangle

Mat	İşlem Üçgen ve Rasyonel Sayılar	Birinci Dereceden Denklem	Üçlü Sayılar
IQ	Şifreler / Passwords	Sayı Dörtgenleri / Number patterns	Sayı Dörtgenleri / Number patterns
Geo	Açılar / Angles	Üçgenin Açıları / Angles in triangles	Dik Üçgen / Right triangle

1. ve 2.sorular aşağıda verilen özelliklere göre cevaplandırılmaktadır.

The 1st and 2nd questions will be answered according to the features given in the figure.



X, Y araçları bulunduğu noktadan başlayarak karemin 1,2,3,4,5 noktalarını dolaşarak başladıkları noktaya geri dönüyorlar.

X aracı dakikada 3 metre Y aracı ise 2 metre yol olmaktadır. Buna göre;

The X, Y tools start from the point they are in and go back to the point where they started by going around the 1,2,3,4,5 points of the square.

Vehicle X travels 3 meters per minute and vehicle Y 2 meters per minute.

X aracı önce 5 sonra 4 ve 3 numaralı noktalardan geçip başlangıç noktasına en erken kaç dakikada gelir?

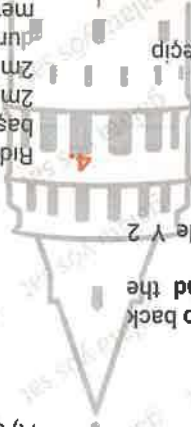
In how many minutes does vehicle X pass through points 5 and then 4 and 3 and arrive at the starting point at the earliest?

- A) 3 B) 4 C) 5 D) 6 E) 7

Y aracı işarelli bir noktaya uğrayarak başlangıç noktasına en erken kaç dakikada gelir?

In how many minutes does the Y vehicle stop at the five marked points and arrive at the starting point at the earliest?

- A) 2 B) 4 C) 6 D) 8 E) 10



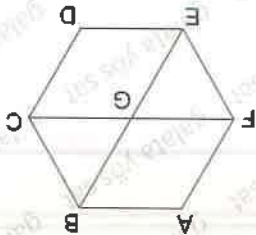
Rıdvan ve İsaac aynı anda aynı yerden adım atmaya başlıyor. Rıdvan önce 6m kuzeye, sonra 8m doğuya ve 2m güneye gidiyor. İsaac ise önce 5m güneye sonra 2m doğuya ve 1m kuzeye gidiyor. Buna göre, son duruşta Rıdvan ile İsaac arasındaki uzaklık kaç metredir?

Rıdvan and Isaac are starting to step from the same place at the same time. Rıdvan goes 6m north, 8m straight 2m south, 5m south 2m north. In the last case, how many meters is the distance between Rıdvan and Isaac?

- A) 7 B) 8 C) 9 D) 10 E) 12

In the above figure, each letter indicates a city. The distance between all cities is 4 units. How many units is the longest journey from A to D, provided that you never pass through a city again and certainly pass through city G?

Vukaradaki şekilde her harf bir şehri göstermektedir. Tüm şehirler arasındaki uzaklık 4 birimdir. Geçilen bir şehirden bir daha geçmemek ve mutlaka G şehirden geçmek koşuluyla A şehirden D şehrine en uzun yol kaç birimdir?



3.



7.

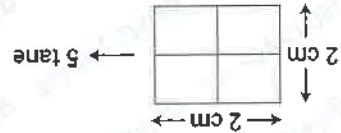
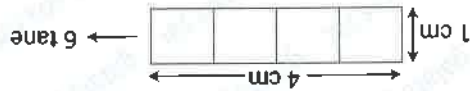
Özellik Feature

5. 6. ve 7. sorular aşağıdaki bilgilere göre cevaplandırılır-

çaktır.

Questions 5, 6 and 7 will be answered according to the

information below.



Yukarıda verilen 1x4 ve 2x2 ebatlarındaki karton parçalarıyla belirli şekiller oluşturulacaktır. Bu şekiller oluşturulurken;

• Her tip kartondan en az birer tane kullanılacaktır.

• Şekiller oluşturulurken arada boşluk kalmamalı ve üst

üste gelmemelidir.

• Kartonlar parçalanmayacaktır.

Buna göre;

Various shapes will be created with the above given 1x4 and 2x2 sized cardboard pieces. When creating these shapes:

• At least one of each type of cardboard will be used.

• While creating the figures, there should not be any space between them and they should not overlap.

• Cartons will not crumble.

5. Bu kartonlarla oluşturulacak en küçük alanlı karenin

gevresi kaç cm'dir ?

How many cm is the circumference of the smallest

square rectangle to be created with these cardboards?

A) 32 B) 28 C) 24 D) 20 E) 16

6. Bu kartonlarla yapılacak en büyük dörtgenin alanı kaç

cm<sup>2</sup> dir ?

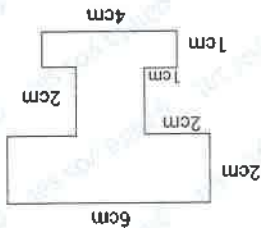
What is the area of the largest rectangle to be made with

these cardboards?

A) 16 B) 20 C) 40 D) 81 E) 100

Yukarıdaki şekli oluşturabilmek için 1x4 ve 2x2 cm'lik kartonlardan kaç tane kullanılmıştır ?

How many 1x4 and 2x2 cm cartons were used to create the above shape?



A) 3 B) 2 C) 2 D) 4 E) 4

(1x4) (2x2)

(1x4) (2x2)

(1x4) (2x2)

(1x4) (2x2)

(1x4) (2x2)

(1x4) (2x2)

(1x4) (2x2)

(1x4) (2x2)

(1x4) (2x2)

(1x4) (2x2)

(1x4) (2x2)

(1x4) (2x2)

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(1x4) (2x2)

(1x4) (2x2)

(1x4) (2x2)

(1x4) (2x2)

(1x4) (2x2)

Şekildeki abaküste 4 basamaklı sayılar gösterilmektedir. Her bir satır bir basamak için kullanılır. Her basamak için üstte 1 tane beyaz boncuk altta ise 5 tane siyah boncuk bulunmaktadır.

Bir rakamın değeri;

• Beyaz boncuk alta ise yukarıya gelimiş siyah boncuk sayısının 1 eksiğine eşittir.

• Beyaz boncuk üstte ise aşağıda olan siyah boncuk sayısının 4 fazlasına eşittir.

The figure shows 4-digit numbers with the abacus. Each line is used for digits. For each step, there are 1 white bead at the top and 5 black beads at the bottom.

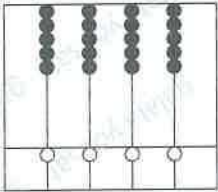
The value of a number;

• If the white bead is at the bottom, it is equal to 1 minus

the number of black beads pulled up.

• If the white bead on top is equal to 4 more than the

number of black beads below.

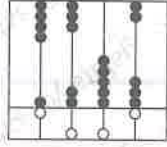


2541 sayısını gösteren abaküste 7051 sayısını göstermek için toplam kaç boncunun yeri değişmelidir ?

How many beads in total should be changed to show the number 7051 in the abacus showing the number 2541?

- A) 4 B) 5 C) 6 D) 7 E) 8

Yukarıdaki abaküs hangi sayıyı göstermektedir ?  
What number does the abacus above show?

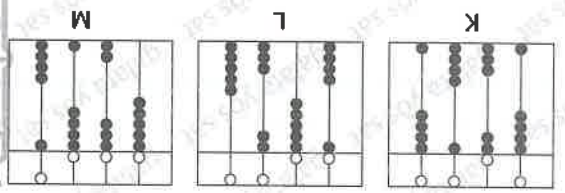


- A) 2034 B) 2470 C) 3521 D) 4965 E) 6418

8.

K, L ve M abaküslerinin gösterdiği sayıların sıralaması aşağıdakilerden hangisidir ?

Which of the following is the order of the numbers indicated by the K, L and M abacuses?



- A)  $M < L < K$   
B)  $L < K < M$   
C)  $K < M < L$   
D)  $K < L < M$   
E)  $L > M < K$

11. ve 12. sorular aşağıdaki bilgilere göre cevaplandırılacaktır.

Karelerin içine sayıların yerleştirildiği bir oyunun kuralları şöyledir.

• Kaç tane kare varsa 1'den başlayarak sayılar karelerin içine yazılmalıdır.

Her karenin içinde sayı olmalıdır.

• Aynı doğru üzerinde bulunan karenin içindeki sayıların toplamı bu doğruun yanına yazılacak sayıya eşittir.

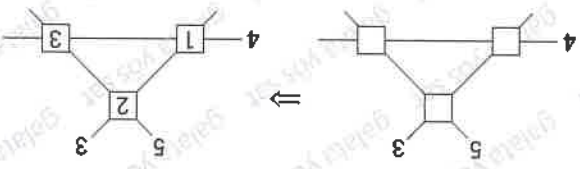
Questions 11 and 12 will be answered according to the information below.

The rules of a game in which numbers are placed in squares are as follows:

• According to the number of squares, starting from 1, the numbers should be written into the squares.

• Each square must have numbers inside.

• The sum of the numbers in the square on the same line is equal to the number to be written next to this line.



3

13.ve14. sorular bu bilgilere göre cevaplandırılacaktır. Alp, Berkay, Ece, Ali ve Ayşe adlı kişilerin herbiri diğ hekimliği, eczacılık, öğretmenlik, avukatlık ve antrenörlük mesleğinden birini yapmaktadır.

13. and 14. questions will be answered according to this information. Alp, Berkay, Ece, Ali and Ayşe each practice one of the professions of dentistry, pharmacy, teacher, lawyer and antresor.

- Alp antrenör veya öğretmendir.
- Alp is a coach or teacher.

- Ece eczacı değildir.
- Ece is not a pharmacist.

- Diğ hekimli olan kadın değildir.
- It is not a woman who is a dentist.

- Öğretmen ve avukat erkektir.
- Teacher and lawyer are men.

13. Bu bilgilere göre Ayşe'nin mesleği nedir ?

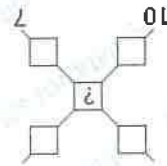
According to this information, what is Ayşe's job?

- A) Diğ hekimli / Dentist
- B) Eczacı / Pharmacist
- C) Öğretmen / Teacher
- D) Avukat / Lawyer
- E) Antrenör / Coach

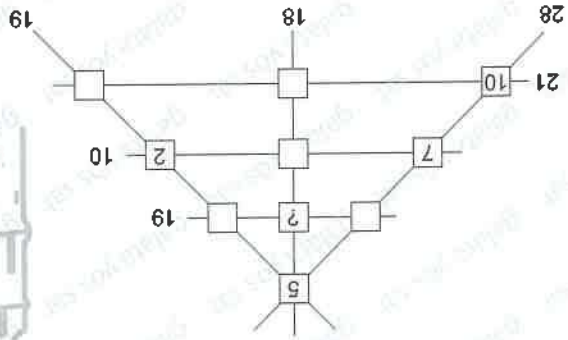
14. Verilen bilgilere göre mesleği kesin belli olmayan iki kişi kimdir ?

Who are the two people whose profession is uncertain according to the information given?

- A) Berkay ve Ali
- B) Berkay ve Alp
- C) Ece ve Ali
- D) Alp ve Ece
- E) Ali ve Alp



- A) 1
- B) 2
- C) 3
- D) 4
- E) 5



- A) 1
- B) 3
- C) 5
- D) 7
- E) 9



15. Bir aile her yıl çocuklarının doğum gününü pasta keserek kutuyorlar. Her yıl çocuk kaç yaşında ise pastaya o kadar mum dikiyorlar. Bu yıla kadar toplam 171 mum diktiklerine göre:  
 Every year a family celebrates their children's birthday by cutting a cake. Every year, the older the child is, the more candles they sew on the cake. According to they planted a total of 171 candles so far this year. What age are they celebrating this child this year?

- A) 18 B) 17 C) 16 D) 15 E) 14

16. 30 ile aynı sütünde bulunan diğer üç sayının toplamı kaçtır?  
 What is the sum of the other three numbers in the same column as 30?

- A) 40 B) 54 C) 60 D) 66 E) 76

17. Her satırdaki sayıların toplamı kaçtır?  
 What is the sum of the numbers in each row?

- A) 54 B) 60 C) 68 D) 70 E) 76

22. 23. ve 24. soruların aşağıdaki bilgilere göre cevaplayınız  
 Answer the questions 22, 23 and 24 according to this table.

14		18	20
	8		
4			

2'den 32'ye kadar olan gift tam sayılar yukarıda verilen kutucuklara aşağıdaki kurallara göre yerleştiriliyor.  
 Even integers from 2 to 32 are placed in the boxes given above according to the following rules.

• Her bir kutucukta farklı bir tamsayı olmalıdır.  
 Each box must have a different integer.

• Her satırda bulunan sayıların toplamı aynıdır.  
 The sum of the numbers in each row is the same.

• Satırdaki sayılar soldan sağa doğru artmaktadır.  
 The numbers in the row increase from left to right.

A)

16
6
2

C)

12
6
2

B)

10
6
2

D)

18
6
2

E)

14
6
2

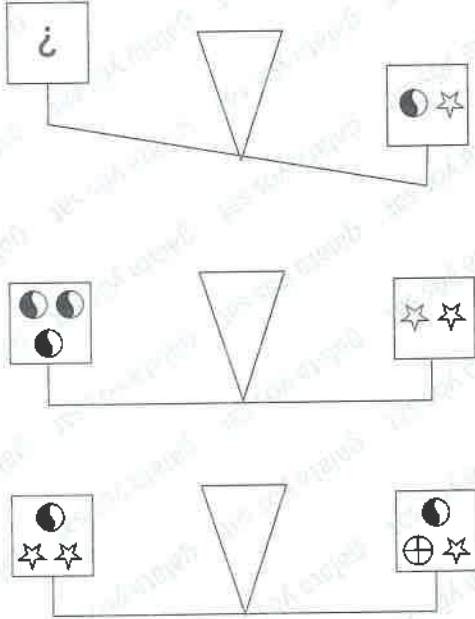
18. 14'ün üstüne hangi sayılar bulunur?  
 What numbers are above 14?



1. ve 2. terazi dengededir. 3. terazinin sağ kefesi daha ağır gelmektedir. Bu durumda sağ kefede aşağıdakilerden hangisi olmaz ?

1st and 2nd balance are in balance. The third scale weighs heavier on the right pan. In this case, which of the following cannot be on the right pan?

- A)  $\oplus \oplus$  B)  $\star \star$  C)  $\oplus \star$   
 D)  $\star \star \star$  E)  $\oplus \ominus$



21.

Yukarıdaki şekilde boş kutulara 16,17,18,19,20,21 sayıları yazılacaktır. Bu sayılar kutulara yazılırken satır, sütun ve köşegen toplamları eşit olması gerekmektedir. Buna göre, X = ?

In the shop above 16,17,18,19,20,21 will be written in the empty boxes. The sums of the numbers in the columns, rows and diagonals must be equal. X=?

		13
15		
X	14	

19.

Asağıdaki tabloda 1,2,3,4,5 sayıları her satırda ve sütünde tam birer kez olacak şekilde yerleştiriliginde "X" yerine hangi sayı gelmelidir ?

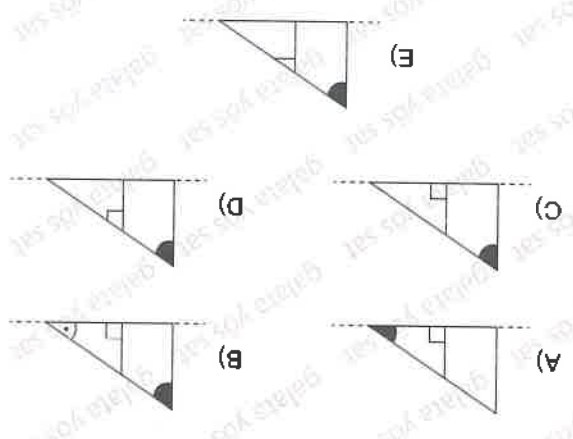
In the following table, when the numbers 1,2,3,4,5 are written in each column and row only once, which Does the number come instead of "X"?

2		4		1
	4	5		
			X	
		3		4
3	2			

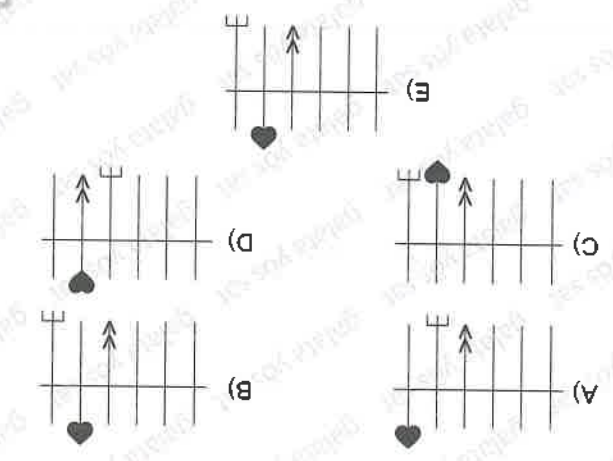
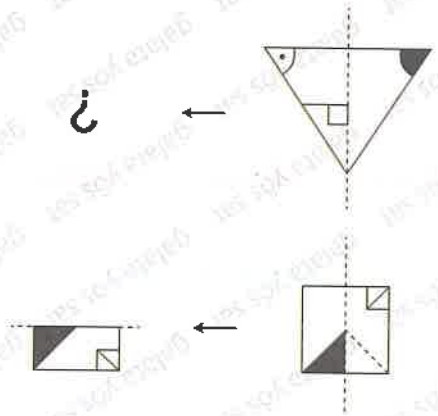
- A) 1 B) 2 C) 3 D) 4 E) 5

22. 7 15 32 67 138 ?

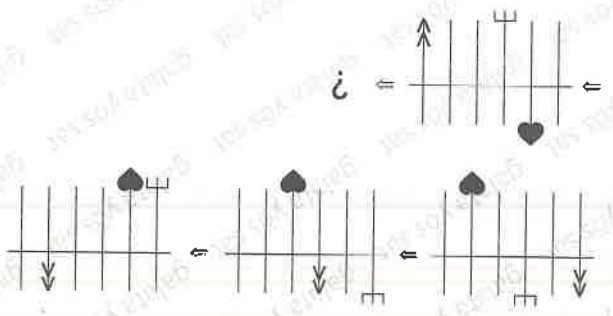
- A) 274 B) 276 C) 278  
 D) 281 E) 282



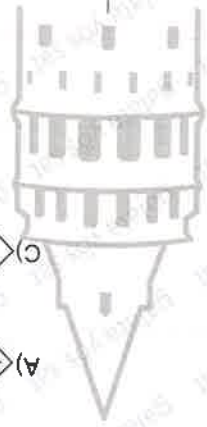
24.



23.



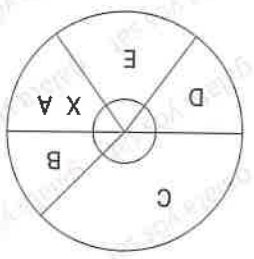
25.



26. Aşağıdakilerden hangisi farklıdır?  
Which of the following is different?

A	21
B	15
C	45
D	25
E	14

X = ?

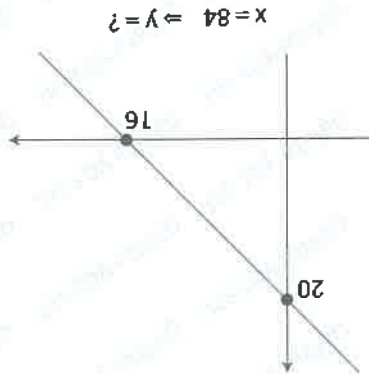


- A) 42
- B) 48
- C) 52
- D) 57
- E) 63

- A) 35
- B) 49
- C) 54
- D) 63
- E) 76



28.



- A) -20 B) -60 C) -80 D) -85 E) -100

30.

$$p \neq q = \begin{cases} p^2 + q^2, & p < q \\ pq + 3, & p > q \end{cases} \Rightarrow (-3) \times (3 \times 2) = ?$$

- A) 27 B) 81 C) 108 D) 54 E) 27

## Matematik Maths

1. Aşağıdakilerden hangisi kesinlikle doğrudur? Which of the following is true?

A)  $(p \vee q) \Rightarrow (p \wedge q) \equiv p \Rightarrow q$

B)  $(p \Rightarrow q) \equiv p' \Rightarrow q'$

C)  $(p \Rightarrow q) \equiv p \Rightarrow q'$

D)  $p \Rightarrow 0 \equiv p$

E)  $(p \Rightarrow p) \equiv p$



2.  $[(\exists x \in R, x^2 \geq 0) \wedge (\forall x \in R, x^2 < x)]$  = ?

A)  $(\forall x \in R, x^2 < 0) \vee (\exists x \in R, x^2 \geq x)$

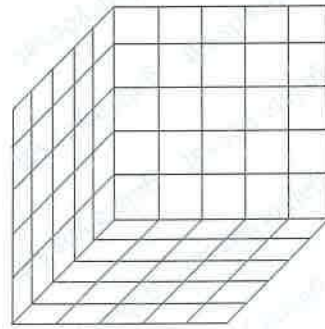
B)  $(\forall x \in R, x^2 < 0) \vee (\forall x \in R, x^2 < x)$

C)  $(\exists x \in R, x^2 < 0) \vee (\forall x \in R, x^2 \geq x)$

D)  $(\exists x \in R, x^2 < 0) \vee (\forall x \in R, x^2 < x)$

E)  $(\forall x \in R, x^2 \leq x) \vee (\exists x \in R, x^2 > x)$

29.



Verilen şekilde 125 tane küp yapıtırıcı yardımıyla bir bütün olmuştur. Karşılıklı gelen yüzeylere birer birim yapıtırıcı sürüldüğüne göre toplam kaç birim yapıtırıcı kullanılmıştır?

125 cubes became a whole with the help of glue. Since one unit of glue is applied to the corresponding surfaces, how many units of glue have been used in total?

- A) 200 B) 250 C) 300 D) 400 E) 450



3.  $p: 3^2 + 4^2 = 5^2$

$q: 8,8 < 8,8$

$r: \sqrt{1 + \frac{16}{1}} = 1 + \frac{4}{1}$

$p, q, r$  önermelerinin doğruluk değerleri sırasıyla aşağıdakilerden hangisidir?

Which of the following are the truth values of the  $p, q, r$  propositions, respectively?

A) 1, 0, 0

B) 1, 1, 0

C) 0, 1, 1

D) 0, 1, 0

E) 1, 1, 1

4.  $(p \Rightarrow q) \wedge (q \Rightarrow 1) = ?$

A) 0

B) 1

C) p

D) p'

E) p'vq

5.  $x = -3$  ise  $5x - 1 < 0$  önermesinin karşıt tersi hangisidir?

x = -3, Which is the contraposition of the proposition

 $5x - 1 < 0?$ A)  $5x - 1 < 0$  ise  $x \neq -3$ B)  $5x - 1 \geq 0$  ise  $x \neq -3$ C)  $5x - 1 \geq 0$  ise  $x = -3$ D)  $x \neq -3$  ise  $5x - 1 \geq 0$ E)  $x = -3$  ise  $5x - 1 < 0$ 

6.  $(p \wedge p) \Leftrightarrow (p \vee p) = ?$

A) 0

B) 1

C) p

D) p'

E)  $p \Rightarrow p$ 

10. Aşağıdakilerden hangisi yanlıştır?

Which of the following is false?

A)  $p \vee q = p$ B)  $p \vee p = p \vee p$ C)  $(p \vee q) \vee r = p \vee (q \vee r)$ D)  $p \vee p' = 1$ E)  $p \vee 0 = p$ 

9. 66 kişilik bir grupta, 38 tane erkek vardır. Kız veya gözlüklü öğrencilerin sayısı 49'dur. Buna göre, gözlüklü erkeklerin sayısı kaçtır?

There are 38 men in a group of 66 people. The number of girls or students with glasses is 49. So what is the number of men without glasses?

A) 31

B) 21

C) 23

D) 28

E) 17

8.  $p: 2^3 < 3^2$  $q: 17$  asal sayıdır / prime number $s: 3 > 5$  $r: \sqrt{3}$  rasyonel bir sayıdır. / rational number.

Buna göre hangisi doğrudur?

Accordingly, which one is true?

A)  $p \Rightarrow q$ B)  $p = s$ C)  $r = p$ D)  $q = s$ E)  $q = r$ 7.  $p' \vee (p \wedge q) = ?$ A)  $p \vee q$ B)  $p \vee q'$ C)  $p' \vee q$ D)  $p \wedge q$ E)  $p' \wedge q$



11.  $(p \vee p) \vee (p \vee p) = ?$

- A) p B) p' C) 1 D) 0 E) p v p

12.  $(p = p) = (q = q) = ?$

- A) p B) p' C) 1 D) q E) q

13.  $x^2 - 8i \cdot x + 9i = 0$

denkleminin kökleri  $x_1$  ve  $x_2$  dir.

$\frac{x_1}{1} + \frac{x_2}{1} = ?$

- A) 9 B) 8 C) 1 D)  $\frac{8}{1}$  E)  $\frac{9}{1}$

14.  $a, b, c \in \mathbb{R}$

$\sqrt{a - \sqrt{3c}} = 2, \sqrt{4a + \sqrt{b - \sqrt{12c}}} = 6$

$\Rightarrow b = ?$

- A) 1 B) 4 C) 9 D) 16 E) 36

15.  $\frac{\sin x - 2 \cos x}{3 \sin x + 4 \cos x} = \frac{3}{2} \Rightarrow \tan x = ?$

- A)  $\frac{3}{2}$  B)  $\frac{2}{3}$  C)  $\frac{14}{9}$  D)  $-\frac{9}{14}$  E)  $-\frac{3}{14}$

16.  $f(x) = (x^2 - 4) \cdot g^2(x)$  veriliyor

$g(2) = 3 \Rightarrow f(2) = ?$

- A) 18 B) 24 C) 36 D) 40 E) 48

17.  $A, B \in \mathbb{R}$

$\int_2^4 \frac{dx}{x^2 + 3x + 2} = A$

$\int_2^4 \frac{dx}{x+1} = B$

$\int_2^4 \frac{dx}{x+2} = ?$

- A) B-A B) A+B C) A-B D)  $B - \frac{A}{2}$  E)  $2B - A$

18.  $\begin{cases} 2x + y = 3 \\ 2x^2 + y^2 = 27 \end{cases} (x, y) = ?$

- A)  $\{(1, -1), (3, -3)\}$  B)  $\{(3, -3), (-1, 5)\}$   
 C)  $\{(-1, 2), (-3, 3)\}$  D)  $\{(-2, 2), (4, -4)\}$   
 E)  $\{(1, 2)\}$

19.  $a, b, c \in \mathbb{Z}^+$

$(4a)^6 \cdot (5b)^8 = (10c)^{14}$

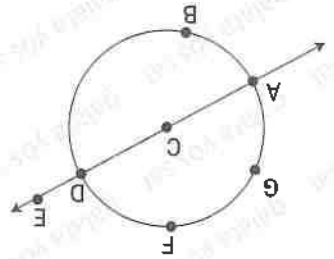
$\Rightarrow \min(a+b+c) = ?$

- A) 9 B) 10 C) 11 D) 12 E) 13

20.  $\left(\sqrt{x} + \frac{\sqrt[3]{x}}{1}\right)^8 = \dots + A \cdot \frac{x}{1} + \dots$

$\Rightarrow A = ?$

- A) 28 B) 21 C) 15 D) 12 E) 6



21.

Şekilde verilen A, B, C, D, E, F, G noktalarından rastgele seçilen üç noktanın bir üçgen oluşturma olasılığı kaçtır?

What is the probability that the three points chosen at random from the points A, B, C, D, E, F, G given in the figure form a triangle?

- A)  $\frac{4}{35}$  B)  $\frac{13}{35}$  C)  $\frac{27}{35}$  D)  $\frac{35}{29}$  E)  $\frac{31}{35}$

22.  $z = 1 + 2i$ , karmaşık sayısının esas argumenti  $\alpha$  olduğuna göre  $\sec \alpha + \operatorname{cosec} \alpha = ?$   
 $z = 1 + 2i$ , since the main argument of the complex number is  $\alpha$ ,  $\sec \alpha + \operatorname{cosec} \alpha = ?$

- A)  $\frac{\sqrt{2}}{2}$  B)  $\sqrt{5}$  C)  $\frac{2}{3\sqrt{5}}$  D)  $2\sqrt{5}$  E) 5

24.  $(Q_n) = (n^2 - 14n - 2)$

dizisinin en küçük terimi kaçtır?

What is the smallest term of the sequence?

- A) -63 B) -51 C) -27 D) 12 E) 0

25.  $(Q_n)$  dizisi için / sequence  $Q_n = Q_{n+3} + 4$  ve  $Q_2 = 1$

$\Rightarrow Q_8 = ?$

What is the value of  $Q_8$ ?

- A) -3 B) -5 C) -6 D) -7 E) -9

26. İlk  $n$  teriminin toplamı  $S_n = n^2 + 4n$  alan bir  $(Q_n)$  aritmetik dizisinde  $Q_4 + Q_5 + Q_6 = ?$

In an arithmetic sequence  $(Q_n)$  where the sum of the first  $n$ -terms is  $S_n = n^2 + 4n$ ,  $Q_4 + Q_5 + Q_6 = ?$

- A) 36 B) 37 C) 38 D) 40 E) 39

23.  $x^{-\ln 3 + \ln 4} = 3^x = ?$

- A) 1 B)  $\sqrt{3}$  C)  $2\sqrt{3}$  D)  $3\sqrt{2}$  E) 6

27. İlk  $n$  terim toplamı  $S_n = 3^n - 1$  olan bir geometrik

dizinin ortak çarpanı kaçtır ?

What is the common factor of a geometric sequence whose first  $n$ -term sum is  $S_n = 3^n - 1$  ?

- A)  $\frac{2}{3}$  B)  $\frac{3}{2}$  C)  $\sqrt{3}$  D) 3 E)  $\frac{1}{3}$

28.  $A = \begin{bmatrix} \log_8 8 & \log_8 e \\ \ln 125 & \log_2 81 \end{bmatrix} = \det A = ?$

- A) 9 B) 12 C) 15 D) 16 E) 21

29.  $n-1$  öneme için 32 farklı doğruluk değeri varsa  $n$  kaçtır ?  
There are 32 different truth values for the  $n-1$  proposition.  
What is  $n$  ?

- A) 4 B) 5 C) 6 D) 7 E) 8

30.  $f(x) = x^3 - 3x^2 + 6x + 2$

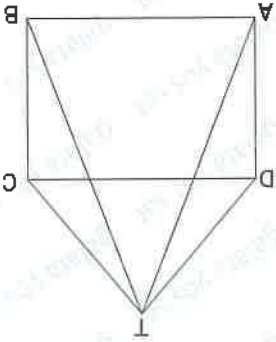
fonksiyonun  $x=2$  noktasında çizilen teğetin eğilimi kaçtır ?

What is the slope of the tangent of the function drawn at the point  $x = 2$  ?

- A) -6 B) 6 C) 8 D) 7 E) -8

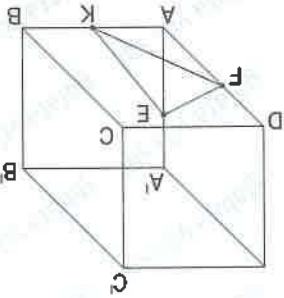
3.

$V = 36\sqrt{5}$  olan gekilideki kare piramidin taban çevresi 24 olduğuna göre yanıl alanı nedir ?  
Since the base circumference of the square pyramid with  $V=36\sqrt{5}$  is 24, what is its lateral area?  
A)  $18\sqrt{6}$  B)  $20\sqrt{6}$  C)  $24\sqrt{6}$  D)  $36\sqrt{5}$  E)  $36\sqrt{6}$



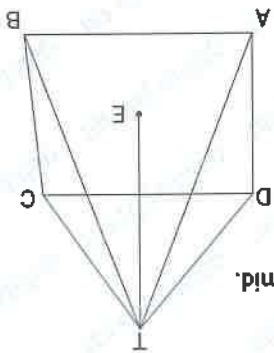
2.

Şekilde bir ayrıtı 12 olan küpün In the figure, a cube with edge of 12.  
 $|AF| = 2 |DF|$   
 $|AK| = 2 |KB|$   
 $|AE| = 3 |EA'|$   
 $V(E, AFK) = ?$



1.

(T, ABCD) kare piramittir. (T, ABCD) is a square pyramid.  
 $A(ABCD) = 36$   
 $|ET| = 3\sqrt{3}$   
 $V = ?$



- A)  $36\sqrt{3}$  B)  $72\sqrt{3}$  C)  $100\sqrt{3}$  D)  $102\sqrt{3}$  E)  $108\sqrt{3}$

4. (T, AB) konisinde / cone

|OB| = 9

|TB| = 15

V = ?

Yanal Alan = ?

Lateral Area = ?

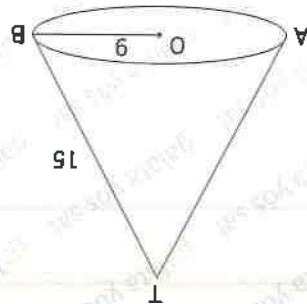
C) V = 300π  
YA = 100π

A) V = 130π  
YA = 300π

D) V = 324π  
YA = 108π

B) V = 324π  
YA = 135π

E) V = 328π  
YA = 135π

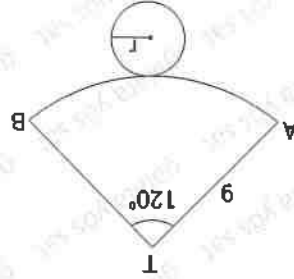


5. Yüzey alanı 72 olan küpün içine yerleştirilecek en büyük yarıçaplı kürenin hacmi nedir? What is the volume of the max radius sphere to be placed in the cube of surface area 72?

A)  $4\sqrt{3}\pi$   
B)  $6\sqrt{3}\pi$   
C)  $8\sqrt{3}\pi$   
D)  $12\sqrt{3}\pi$   
E)  $24\sqrt{3}\pi$



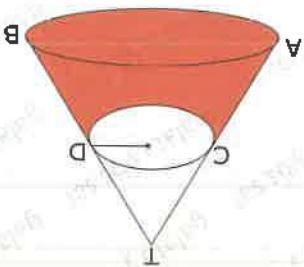
6. Ağilmi verilen koninin alanı nedir? What is the area of the cone?



A)  $27\pi$   
B)  $30\pi$   
C)  $32\pi$   
D)  $36\pi$   
E)  $48\pi$

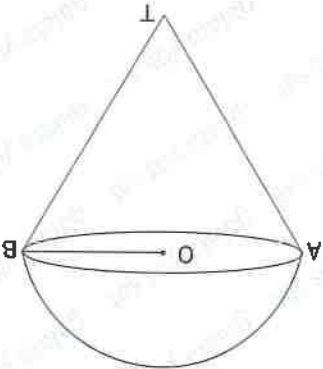
7.

|TC| = 3|AC|  
V(T, CD) = 27cm<sup>3</sup>  
olan (T, AB) konisinde Taralı parçanın hacmi nedir?  
Shaded piece volume in the (T, AB) cone = ?



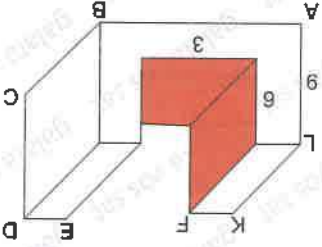
A) 27  
B) 30  
C) 37  
D) 54  
E) 74

8. O; merkezli yarımküre ile [AB] çaplı koni birleştirilmiştir. O; centered hemisphere combined with [AB] diameter cone.  $\frac{V_{\text{küre}}}{V_{\text{sphere}}} = \frac{V_{\text{koni}}}{V_{\text{cone}}} = ?$  (TO) = 4|OB|



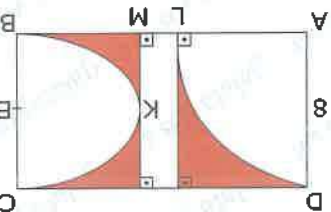
A)  $\frac{1}{2}$   
B)  $\frac{3}{1}$   
C)  $\frac{4}{1}$   
D)  $\frac{5}{1}$   
E)  $\frac{1}{6}$

9. Şekilde bir ayrıntı 9 birim olan küpten ayrıtılan 3,6,9 birim olan dikdörtgen prizma gikartılıyor. Oluşan cismin yüzey alanı kaç birim karedir? In the figure, a rectangular prism whose edges are 3,6,9 units is extracted from a cube with 9 units on one side. How many unit square is the surface area of the object formed?

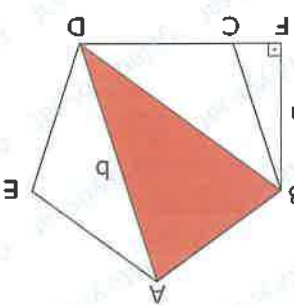


A) 508  
B) 528  
C) 558  
D) 568  
E) 600



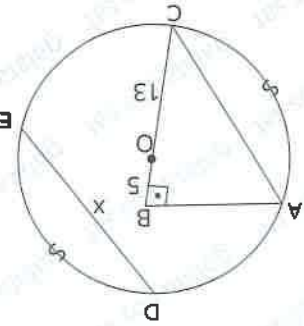


13. ABCD bir dikdörtgen  
 ABCD rectangular  
 A: çeyrek dairenin  
 merkezi  
 A: center of the quarter  
 circle  
 E: yarım dairenin merkezi  
 E: center of the semicircle  
 K ve L: teğet noktalar  
 K and L: tangent points  
 $LM = 2$   
 $TA = ?$   
 A)  $48 - 12\pi$   
 B)  $60 - 12\pi$   
 C)  $96 - 24\pi$   
 D)  $112 - 24\pi$   
 E)  $100 - 12\pi$

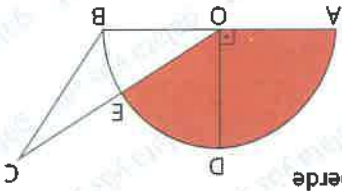


10. ABCDE düzgen beşgen  
 ABCDE regular pentagon  
 $AD = b$   
 $BF = a$   
 A(ABD)'nin a ve b  
 cinsinden değeri?  
 What is A(ABD) in  
 terms of a and b?  
 A)  $a + b$   
 B)  $a - b$   
 C)  $\frac{a \cdot b}{2}$   
 D)  $a \cdot b$   
 E)  $2ab$

14. O: merkezli tam çemberde  
 O: centered full circle  
 $AC = DE$   
 $OC = 13$   
 $BO = 5$   
 $DE = x = ?$



15. O: merkezli yarım çemberde  
 O: centered semicircle  
 $OC = 12\sqrt{3}$   
 $m(\widehat{BC}) = 120^\circ$   
 $[OD] \perp [AB]$   
 $|OD| = |BC|$   
 Taralı alan = ?  
 Shaded area = ?



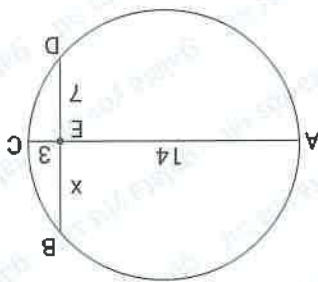
A)  $27\pi$   
 B)  $30\pi$   
 C)  $32\pi$   
 D)  $60\pi$   
 E)  $108\pi$

11.  $(x+4)^2 + (y-5)^2 = 36$  olan çemberin  $2x - 5y + 4 = 0$   
 doğruyu üzerindeki kirişin uzunluğu nedir?  
 What is the length of the beam on the line  $2x + 5y - 4 = 0$   
 of the circle with  $(x+4)^2 + (y-5)^2 = 36$   
 A)  $2\sqrt{5}$   
 B)  $2\sqrt{7}$   
 C)  $4\sqrt{7}$   
 D)  $5\sqrt{7}$   
 E)  $6\sqrt{7}$

12. O: merkezli yarım çemberde  
 O: centered semicircle  
 $OC = 12\sqrt{3}$   
 $m(\widehat{BC}) = 120^\circ$   
 $[OD] \perp [AB]$   
 $|OD| = |BC|$   
 Taralı alan = ?  
 Shaded area = ?

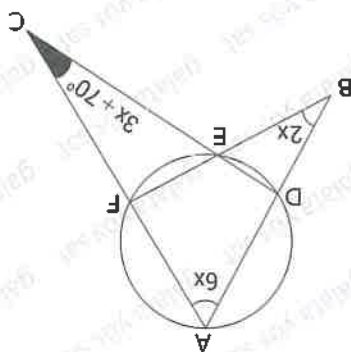
A)  $2\sqrt{5}$   
 B)  $2\sqrt{7}$   
 C)  $4\sqrt{7}$   
 D)  $5\sqrt{7}$   
 E)  $6\sqrt{7}$

A) 6  
 B) 7  
 C) 8  
 D) 9  
 E) 14



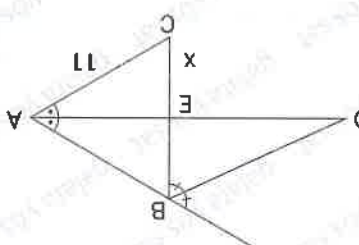


15. A) 50 B) 60 C) 70 D) 80 E) 100



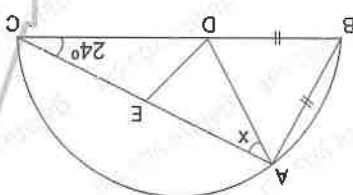
$m(\widehat{BAF}) = 6x$   
 $m(\widehat{ABF}) = 2x$   
 $m(\widehat{ACD}) = 3x + 70^\circ$   
 $m(\widehat{ACD}) = ?$

- A) 5 B) 6 C) 7 D) 10 E) 11



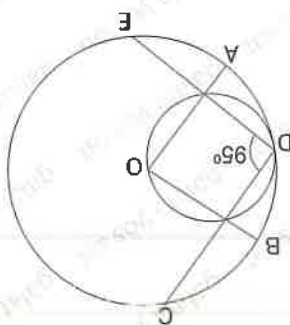
**20.** [BD]: dış açıortay,  
 [AD]: iç açıortay,  
 [AD]: interior bisector, D  
 $\frac{|DE|}{|EA|} = \frac{5}{6}$   
 $|AC| = 11$   
 $|EC| = x = ?$

- A) 33 B) 50 C) 52 D) 57 E) 60



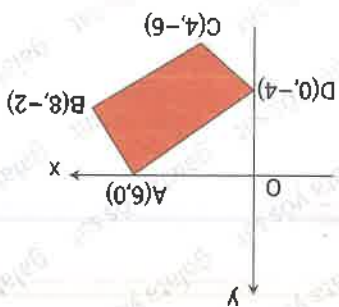
**17.** BC: çaplı yarım  
 çemberde  
 BC; diameter of  
 the semicircle  
 $|AB| = |BD|$   
 $m(\widehat{ACB}) = 24^\circ$   
 $x = ?$

- A) 80 B) 82 C) 85 D) 90 E) 95



**16.** O: büyük çemberin merkezi  
 $m(\widehat{CDE}) = 95^\circ$   
 $m(\widehat{BC}) + m(\widehat{AE}) = ?$

- A) 18 B) 20 C) 22 D) 24 E) 28



**19.**  $A(ABCD) = ?$

# Başarıya Götüren



KTS-30

Mat	Problem / Problem	Mat	Matrik / Logic	Geo	Kat Cisimler / Rigid Bodies
IQ	Problem / Problem	IQ	Problem / Problem	IQ	Sudokü
Geo	Vektörler / Vectors	Geo	Kat Cisimler / Rigid Bodies	Geo	Kat Cisimler / Rigid Bodies

Mat	Integral / Integral	Mat	Matris ve Determinant	Geo	Çemberin Analizi / Circle Analysis
IQ	3 Boyutlu Cisim / 3D Object	IQ	Saatler - Üçgen Sayma	IQ	Saatler - Üçgen Sayma
Geo	Doğru Analizi / Right Analytics	Geo	Çemberin Analizi / Circle Analysis	Geo	Çemberin Analizi / Circle Analysis

Mat	Integral / Integral	Mat	Türev / Derivative	Geo	Çemberde Uzunluk / Circle Length
IQ	Şekli Karşılaştırma	IQ	Farklı Çiçim Bulma	IQ	Şekli İlgili Soruların Sıralama
Geo	Analitik Geometri / Analytical Geometry	Geo	Çemberde Alan / Area in a Circle	Geo	Çemberde Alan / Area in a Circle

Mat	Logaritma Türümleri	Mat	Özel Tanımlı Fonksiyonlar	Geo	Çemberde Alan / Angle on Circle
IQ	Şekli İlgili Soruların Sıralama	IQ	Şekli İlgili Soruların Sıralama	IQ	Şekli İlgili Soruların Sıralama
Geo	Dikdörtgen / Rectangular	Geo	Kare / Square	Geo	Çemberde Alan / Angle on Circle

Mat	Karmaşık Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry	Geo	Çevre Alan / Environment - Area
IQ	Şekli İlgili Soruların Sıralama	IQ	KLM	IQ	Çevre Alan / Environment - Area
Geo	Yamuk / Trapezoid	Geo	Eğik Kenar Dörtgen / Rhombus	Geo	Çevre Alan / Environment - Area

Mat	Modüler Aritmetik	Mat	Polinom / Polynomial	Geo	Paralelkenar I
IQ	Küp Sayma Tamsayısı	IQ	Gençlikler / Graphics	IQ	Gençlikler / Graphics
Geo	Çokgenler / Polygons	Geo	Dörtgen / Quadrilateral	Geo	Paralelkenar I / Parallelogram I

Mat	İşlem / Operation	Mat	Kartzyan Çarpım ve Fonksiyonlar	Geo	Üçgenin Alanı / Area of Triangles
IQ	Denklemler Eşitlik / Equation Matching	IQ	Eşitlikler / Matching	IQ	Farklılıklar / Scales
Geo	Üçgenin Alanı / Area of Triangles	Geo	Üçgenin Alanı / Area of Triangles	Geo	Üçgenin Alanı / Area of Triangles

Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers	Mat	Oran Orantı / Ratio and Proportion
IQ	Sayı Sayma / Number Relations	IQ	Farklılıklar / Tables	IQ	Farklılıklar / Tables
Geo	Konveks / Convex	Geo	Üçgenin Benzerlik	Geo	Üçgenin Benzerlik

Mat	Basit Eşitlik ve Mutlak Değer	Mat	Çarpımın Ayırma / Factorization	Mat	İkinci Sayılar / Radical Expressions
IQ	Basit Eşitlik ve Mutlak Değer	IQ	Çarpımın Ayırma / Factorization	IQ	İkinci Sayılar / Radical Expressions
Geo	Agonometri / Biector	Geo	İkizkenar ve Eşkenar Üçgen	Geo	Dik Üçgen (Dik) / Right triangle

Mat	İşlem Üçgen ve Rasyonel Sayılar	Mat	Birinci Dereceden Denklemler	Geo	Üçgenin Alanı / Angles in Triangles
IQ	Şifreler / Passwords	IQ	Sayı Üçgenleri / Number patterns	IQ	Sayı Üçgenleri / Number patterns
Geo	Açılar / Angles	Geo	Üçgenin Alanı / Angles in Triangles	Geo	Dik Üçgen / Right triangle

1. Bir mühendis ile kızı, avukat ile eşi yürüyüşe gikiyorlar

yolda yürürken 3 soda aliyorlar ve her biri bir soda içiyor.

Buna Göre:

I. Mühendis avukatın eşidir.

II. Avukatın hanımı mühendis kendisidir.

III. Avukat mühendisin damadidir.

Hangileri doğrudur ?

An engineer and his daughter, a lawyer and his wife go for

a walk, take 3 sodas while walking on the street, and each

one drinks a soda.

According to this:

I. Engineer is the wife of the lawyer.

II. The lawyer's wife is the engineer himself

III. The lawyer is the son-in-law of the engineer.

Which ones are true?

A) I.

B) II.

C) III.

D) I-II

E) I-II-III

2.

2020 Yılında bu mağazada 1400 tablet satıldığına göre

aynı yıl kaç bulaşık makinesi satılmıştır ?

Since 1400 tablets were sold in this store in 2020, how

many dishwashers were sold in the same year?

A) 500 B) 560 C) 600 D) 640 E) 700

2020 yılında televizyon satışı buzdolabı satışından 164

fazla ise aynı yıl kaç tane çamaşır makinesi satılmıştır ?

If the sales of televisions are 164 higher than the sales of

refrigerators in 2020, how many washing machines were

sold?

A) 760 B) 780 C) 800 D) 820 E) 840

3.

2 ve 3.sorular aşağıdaki tabloya göre cevaplandırılacaktır.

Questions 2 and 3 will be answered according to the table

below.



Bir mağazanın 2020 yılındaki elektronik eşya satışının

orsansal dağılımı dairisel grafikte gösterilmektedir.

The proportional distribution of a store's sales of

electronics in 2020 is shown in a circular chart.

4. ve 5. sorular aşağıdaki bilgilere göre cevaplandırılacaktır.

The 4th and 5th questions will be answered according to

the following information.

Bahışta, Farışta, Farshed, Nazila ve Müslima'nın

saatlerinin doğru zamana göre durumu şöyledir.

The clocks of Bahışta, Farışta, Farshed, Nazila and

Muslim according to the correct time are as follows:

• Bahışta: 5 dakika geri / Bahışta: 5 minutes back

• Farışta: 10 dakika ileri / Farışta: 10 minutes ahead

• Farshed: 8 dakika geri / Farshed: 8 minutes back

• Nazila: 7 dakika ileri / Nazila: 7 minutes ahead

• Müslima: 4 dakika geri / Müslima: 4 minutes behind



7. 8. ve 9. sorular aşağıdaki bilgilere göre cevaplandırılacaktır.  
Questions 7, 8 and 9 will be answered according to the information below.  
Bir şifre sisteminde yer alan bazı şekiller aşağıda verilmiştir.  
Some shapes are used in a password system as given below



Şifresi gözülmemiş şekillerle ilgili şunlar bilinmektedir.

The following are known regarding the decrypted shapes.

● Her şekil E,B,D,R,N,Y,I,U harflerinden birini göstermektedir.  
Each figure shows one of the letters E, B, D, R, N, Y, I, U.

● ve şekilleri R ve U harflerini göstermektedir.

The figures show the letters R and U.

● şekillerinin ikisi N ve B harflerini

göstermektedir. / The figures show the letters N and B.

● şekli V harfini göstermektedir./shows the letter V.

4. Müslümanın saat 21:21 gösterdiğinde Farishta'nın saat

kayı gösterir?

When the clock of Müslüma shows 21:21, what time does Farishta's clock show?

A) 21:11 B) 21:17 C) 21:25 D) 21:31 E) 21:35

5. Nazila'nın saatine göre 21:57 de başlayan bir film, Farshed'in saatine göre 23:56 da bitmiştir. Buna göre; Bu film kaç dakika sürmüştür?

A movie that started at 21:57 by Nazila's time ended at 23:56 by Farshed's clock. How many minutes did this movie take?

A) 121 B) 129 C) 134 D) 140 E) 147

6. 31 kişilik bir sınıfta kız öğrencilerin sayısı erkek öğrencilerin

sayısının 3 katından 1 eksiktir. Buna göre; Bu sınıftaki kız

öğrenci sayısı kaçtır?

In a class of 31 students, the number of female students is 1 less than 3 times the number of male students. What is the number of female students in this class?

A) 23 B) 21 C) 19 D) 17 E) 15

7. Şeklinin bir ünsüz harfi gösterdiği var sayıldığında, bu şekil aşağıdaki harflerden hangisini gösterir ?



Assuming that the shape represents a consonant, which of the following letters does that figure represent?

- A) B B) V C) D D) R E) N

8. Şifrenin tam olarak gözölmediği göz önünde bulundurularak aşağıdaki şekillerden hangisinin gösterdiği harf sayısı olasılığı en fazladır ?  
Considering that the password is not fully decoded, which of the figures below shows the most probability of the number of letters?

- A) B) C) D) E)

9. Yukarıdaki şifresi verilen yazı aşağıdakilerden hangisi olarak olabilir ?  
Which of the following could be the text with the password given above?

- A) B) C) D) E)

- A) RÖVÜ B) RNÜVB C) RVÜND D) RÖNVÜ E) ÖRVBR

10.11. ve 12. sorular aşağıdaki bilgilere göre cevaplandırılacaktır.  
Questions 10, 11 and 12 will be answered according to the information below.

Yukarıdaki tablo Miladi takvime göre, artik yıl (Şubat ayının 29 olduğu yıl) olan A yılının Mart ayını göstermektedir.

The table above shows the month of March of year A, which is the leap year (the year February is 29) in the Gregorian calendar.

Pazartesi / Monday	Salı / Tuesday	Çarşamba / Wednesday	Perşembe / Thursday	Cuma / Friday	Cumartesi / Saturday	Pazar / Sunday
4	5	6	7	8	9	3
11	12	13	14	15	16	10
18	19	20	21	22	23	17
25	26	27	28	29	30	24

10. A yılının 9 Haziranı haftanın hangi gününe denk gelmektedir ?

- A) Çarşamba / Wednesday B) Perşembe / Thursday C) Cuma / Friday D) Cumartesi / Saturday E) Pazar / Sunday

11. A yılının Temmuz ayının ilk Cuma günü ayın kaçırday of the month is on the first Friday of July of year A?

- A) 2 B) 3 C) 4 D) 5 E) 6



12. Aşağıdakilerden hangisi A yılının Ocak ayını göstermektedir?

Which of the following represents January of year A?

Pazartesi / Monday	1	8	15	22	29
Salı / Tuesday	2	9	16	23	30
Çarşamba / Wednesday	3	10	17	24	31
Perşembe / Thursday	4	11	18	25	
Cuma / Friday	5	12	19	26	
Cumartesi / Saturday	6	13	20	27	
Pazar / Sunday	7	14	21	28	

A)

Pazartesi / Monday	5	12	19	26	
Salı / Tuesday	6	13	20	27	
Çarşamba / Wednesday	7	14	21	28	
Perşembe / Thursday	1	8	15	22	29
Cuma / Friday	2	9	16	23	30
Cumartesi / Saturday	3	10	17	24	31
Pazar / Sunday	4	11	18	25	

B)

Pazartesi / Monday	4	11	18	25	
Salı / Tuesday	5	12	19	26	
Çarşamba / Wednesday	6	13	20	27	
Perşembe / Thursday	7	14	21	28	
Cuma / Friday	1	8	15	22	29
Cumartesi / Saturday	2	9	16	23	30
Pazar / Sunday	3	10	17	24	31

C)

Pazartesi / Monday	6	13	20	27	
Salı / Tuesday	7	14	21	28	
Çarşamba / Wednesday	1	8	15	22	29
Perşembe / Thursday	2	9	16	23	30
Cuma / Friday	3	10	17	24	31
Cumartesi / Saturday	4	11	18	25	
Pazar / Sunday	5	12	19	26	

D)

Pazartesi / Monday	7	14	21	28	
Salı / Tuesday	1	8	15	22	29
Çarşamba / Wednesday	2	9	16	23	30
Perşembe / Thursday	3	10	17	24	31
Cuma / Friday	4	11	18	25	
Cumartesi / Saturday	5	12	19	26	
Pazar / Sunday	6	13	20	27	

E)

13. Galata YÖS deneme kitabının sayfaları birden başlayarak 1,2,3,4... şeklinde numaralandırılmıştır ve numara işleminde toplam 594 tane rakam yazılmıştır. Buna göre; Galata YÖS deneme kitabı kaç sayfadır?

The pages of the Galata YÖS trial book are numbered 1,2,3,4... starting from one. A total of 594 numbers were used in the numbering process.

How many pages is the Galata YÖS trial book?

- A) 225 B) 231 C) 234 D) 238 E) 241

14.

9'dan 1'e kadar olan sayılar, sayısal değerleri kadar yanyana konularak bir A sayısı oluşturulmuştur.

An A number was created by putting the numbers from 9 to 1 side by side as much as their numerical values.

A = 99999999999888 ... 4444333221

olduğuna göre, A sayısının baştan 36. rakamı kaçtır? so what is the 36th digit of the number A from the beginning?

- A) 7 B) 6 C) 5 D) 4 E) 3

15.

Bir bilet kuyruğunda Azra baştan 16. sırada, Gizem ise sondan 22. sıradadır.

Azra ile Gizem arasında 9 kişi olduğuna göre kuyrukta toplam en az kaç kişi vardır?

In a ticket queue, Azra is 16th from the beginning and Gizem is 22nd from the end.

Since there are 9 people between Azra and Gizem, how many people are in the queue at least?

- A) 26 B) 27 C) 28 D) 29 E) 30

16. Boş sorudan oluşan bir ankette her soruya A, B, C, D, ve E yanıtlarından birinin verilmesi gerekmektedir. Aşağıdaki tabloda Hasan, Seher, Hüseyin, Atike ve Ahmet'in bu anketteki sorulara vermiş oldukları yanıtların bazılarını gösterilmiş tir.

In a questionnaire consisting of five questions, one of the answers A, B, C, D, and E should be given to each question. In the table below, some of the answers given by Hasan, Seher, Hüseyin, Atike and Ahmet to the questions in this questionnaire are shown.

	1.soru question 1	2.soru question 2	3.soru question 3	4.soru question 4	5.soru question 5
Hasan	C	B			
Seher		D	C		
Atike			D		
Hüseyin					
Ahmet		A	B	C	

Tablo, bu kişilerin verdikleri diğer yanıtlarla tümüyle doldurulduğunda hiçbir satır ve hiçbir sütunda harf tekrarı bulunmadığına göre, Hüseyin 2.soruya hangi yanıtı vermiştir?

When the table is completely filled with the other answers given by these people, what answer does Hüseyin give to the second question?

- A) A B) B C) C D) D E) E

17. Aşağıdaki aritmetik diziye göre  $P_{11} = ?$

According to the following arithmetic sequence, calculate  $P_{11} = ?$

$P_1$					
-22	...				
$P_{15}$					...

- A) 46 B) 48 C) 50 D) 55 E) 62

19.



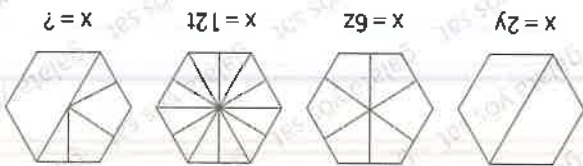
A) 1

- B) 2 C) 4 D) 5 E) 6

$$x = ?$$

+	x	x	y	z
x				
y	$z^2$			$4x$
z				8

- A)  $y + 3z + t$  B)  $y + 4z$  C)  $2y + 2z + 2t$  D)  $y + z + t$  E)  $2z + 2t + y$



18.

20. Aşağıdakilerden hangisi diğerlerinden farklıdır? Which of the following is different from the others?

- A) A 4 B) E 64 C) U 92 D) I 86 E) O 104

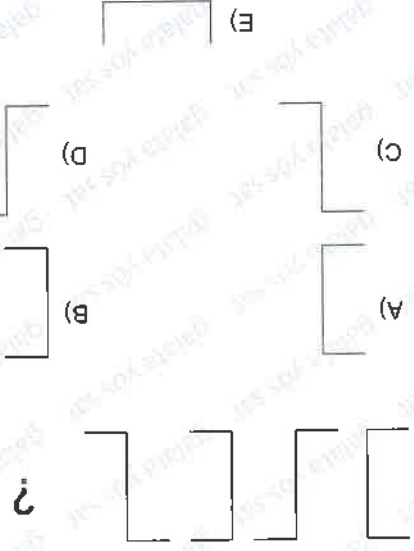
21. 

13:29	14:03	14:38	15:14	?
-------	-------	-------	-------	---

- A) 15:48  
 B) 15:49  
 C) 15:50  
 D) 15:51  
 E) 15:52

22. 328 335 347 366 405 ?

- A) 409 B) 417 C) 445 D) 455 E) 470



23.

4	C	D	2
3	A	B	1
1	2	4	3
2	3	1	4

25.

- A) 

4	2
1	2

  
 B) 

2	1
3	4

  
 C) 

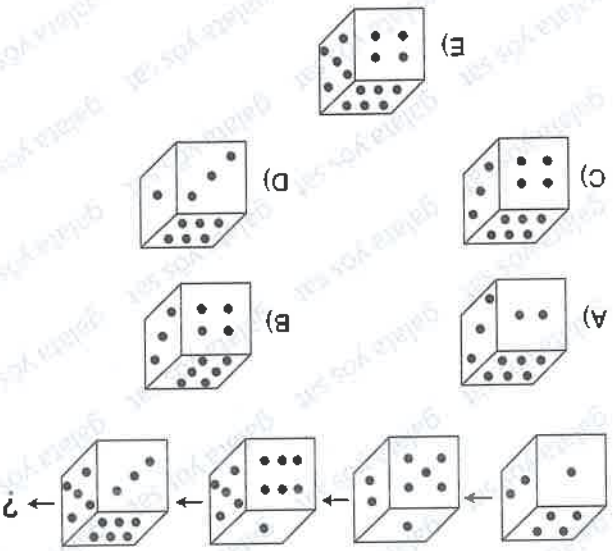
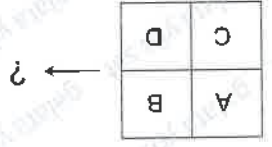
4	2
1	3

  
 D) 

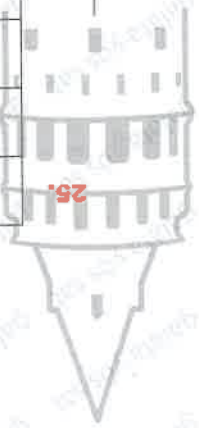
2	1
4	3

  
 E) 

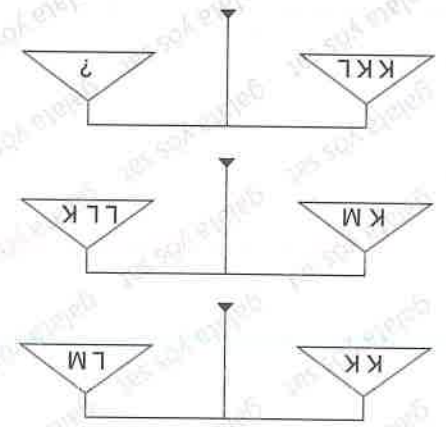
3	3
1	4



24.



- A) LM
- B) MM
- C) LL
- D) KM
- E) KL



27.

- A) ●
- B) ▽
- C) ☆
- D) □
- E) ←

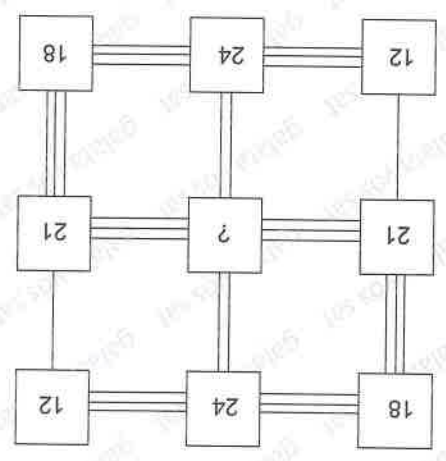
$\Rightarrow X = ?$

$(\leftarrow + \star + \nabla) + (\square + \bullet + \leftarrow) + X = \leftarrow$

●	▽	←	□	☆	←
▽	←	□	☆	●	□
←	□	☆	●	▽	☆
□	☆	●	▽	←	●
☆	●	▽	←	□	▽
←	□	☆	●	▽	+

26.

- A) 18
- B) 21
- C) 24
- D) 27
- E) 30



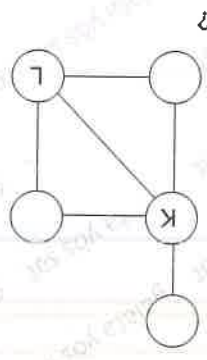
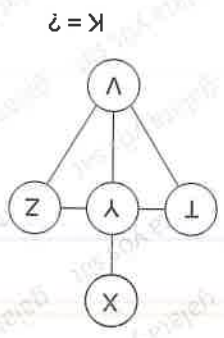
30.

- A) 113
- B) 104
- C) 92
- D) 75
- E) 68

21 × 13 = 15  
 23 × 17 = 63  
 34 × 51 = 51  
 28 × 63 = ?

29.

- A) Y
- B) T
- C) Y
- D) X
- E) Y



28.



1. 5 katının 3 eksiği 92 olan sayı kaçtır ?  
Five times, minus three of a number is 92, what's the number?

A) 13 B) 14 C) 15 D) 17 E) 19

2. Bir kesrin payı paydasının 3 katıdır. Bu kesrin paydası paydasından 4 fazla olduğuna göre, kesrin paydası kaçtır ?

The numerator of a fraction is 3 times its denominator. Since the numerator of this fraction is 4 more than the denominator, what is the denominator of the fraction?

A) 5 B) 4 C) 3 D) 2 E) 1

3. Bir dikdörtgenin kenar uzunluklarının oranı  $\frac{5}{3}$ 'tür. Bu dikdörtgenin çevresi 192 cm olduğuna göre, alanı kaç  $\text{cm}^2$  dir ?  
The ratio of side lengths of a rectangle is  $\frac{5}{3}$ . Since the circumference of this rectangle is 192 cm, how many  $\text{cm}^2$  is its area?

A) 2140 B) 2160 C) 2170 D) 2180 E) 2190

4. 12 yıl sonraki yaşı şimdiki yaşının 2 katına eşit olacak Ali, kaç yıl önceki yaşı şimdiki yaşının yarısına eşittir ?  
Ali, 12 years later, will be equal to twice his current age, how many years ago is his age equal to half his current age?

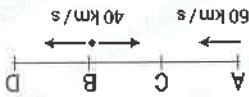
A) 6 B) 7 C) 8 D) 9 E) 10

5.

Bir işçi bir işi 15 saatta yapmaktadır. Çalışma kapasitesi %25 azaltırsa aynı işi kaç saatte yapar ?

A worker can do a job in 15 hours. If his working capacity decreases by 25%, how many hours does he do the same job?

A) 24 B) 20 C) 18 D) 14 E) 12



6.

A ve B noktalarından aynı anda hareket eden iki araç aynı yönde gittiklerinde kaç saat sonra aradaki arazı öndekine yetişir ?

If two vehicles moving simultaneously from points A and B drive in the opposite direction, since they meet after 4 hours, how many hours after they go in the same direction will the vehicle in between reach the one in front?

A) 20 B) 18 C) 15 D) 12 E) 10

7.

Bir satıcı 10 yumurtayı 1 TL ye alıp, 8 yumurtayı 1 TL ye satıyor. Buna göre satıcının karı yüzde kaçtır ?

A seller buys 10 eggs for 1 TL and sells 8 eggs for 1 TL. What is the percentage of the seller's profit accordingly?

A) 10 B) 15 C) 20 D) 24 E) 25

8.

Su oranı % 70 olan 270 lt tuzlu su çözeltisine kaç lt su ilave edilirse tuz % 10 olur ?

How many liters of water is added to 270 liters of brine solution with 70% water, the salt becomes 10%?

A) 540 B) 400 C) 300 D) 250 E) 200



9. Yıllık % 8 faiz oranı ile bankaya yatırılan bir miktar para 1 yıl sonra faizi ile birlikte 54 TL olduğuna göre bankaya yatırılan para kaç TL dir ?

Since a sum of money deposited in the bank with an annual interest rate of 8% is 54 TL together with its interest after 1 year, how many TL is the money deposited in the bank?

- A) 40 B) 45 C) 48 D) 50 E) 52

10. All ve Ahmet bir galeriden aldıkları arabalar için yaptıkları ödemeler aşağıda verilmiştir.  
The payments All and Ahmet made for the cars they bought from a gallery are given below.

Pesinat Yüzdesi % Aylık Takasit Tutarı TL	Down Payment Monthly Instalment	Ahmet
Percentage % Amount TL		
25	1500	2000
40		

Her ikisinin de yaptıkları peşin ödemelerden sonra takasile ödeyeceği toplam tutar eşittir. Her arabanın fiyatı 45 000 TL' den fazla olduğuna göre Ahmet' in almış olduğu arabanın fiyatı All' nin almış olduğu arabanın fiyatından en az kaç TL fazladır.

The total amount that they will pay in instalments after the advance payments they both made is equal. Since the price of each car is more than 45 000 TL, how much is the price of the car that Ahmet bought at least TL more than

- A) 10 000 B) 12000 C) 14000 D) 16000 E) 18000

11. 90 araç alabilen bir otoparkta  $x+4$  araç varken  $4x+6$  araçlık boş yerli  $2x+8$  araç varken  $y-8$  araçlık boş yer kalıyor. Buna göre  $y$  kaçtır ?  
While there are  $x+4$  vehicles in a car park that can accommodate 90 vehicles, there is an empty space for  $4x+6$  vehicles, while there are  $2x+8$  vehicles there is an empty space for  $y-8$  vehicles. So what is  $y$ ?

- A) 48 B) 50 C) 52 D) 54 E) 58

13. Sekizdeki satır ve sütunların kesişiminde verilen sayılar, bulunduğu satır ve sütunun belirttiği iki şehir arasındaki yolun km cinsinden uzunluğunu göstermektedir. Örneğin A ile D şehirleri arasındaki yol 130 km dir.  
A, B, C, D, E şehirleri aynı yol üzerinde ve yazılan sıradaki kullanıldığında,  $x+y$  kaçtır ?  
The numbers given at the intersection of the rows and columns in the figure show the length of the road in km between the two cities indicated by the row and column in which they are located.

	A	B	C	D	E
A		X			
B					
C					
D					
E					

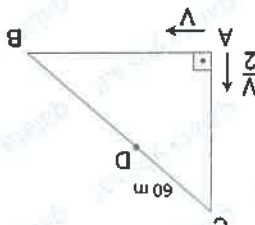
12. Yukarıda verilere göre, 13 sırasız olan benzer bir şekilde kaç tuğla vardır ?  
How many bricks are there in a similar way with 13 rows, according to the above data?



- A) 37 B) 38 C) 45 D) 49 E) 53

For example, the road between A and D cities is 130 km. Since the cities A, B, C, D, E are on the same road and in the order written, what is  $x+y$ ?

- A) 90 B) 100 C) 120 D) 130 E) 140

14. Şekildeki ABC dik üçgeninin, A köşesinde bulunan iki hareketliden biri B'ye doğru saatteki V metre sabit hızla, diğeri de C'ye doğru saatte  $\frac{2}{V}$  metre sabit hızla aynı anda hareket etmektedir. Bu iki hareketli |BC| üzerinde D noktasında hareket etmektedir. Bu iki hareketli |BC| üzerinde D noktasında karşılaşıyorlar.  
 $3 \cdot |AB| = 4 \cdot |AC|$  ve  $|CD| = 60$  m olduğuna göre |BC| uzunluğunu kaç m dir ?
- 
15. Bir arag belli bir yolu x km/s hızla a-3 saatte almıştır. Arag hızını saatte 3 km arttırırsa aynı yolu kaç saatte alırdı ?  
 A vehicle traveled a certain distance at a speed x km / h in a-3 hours. How many hours would it take the same road if the vehicle increased its speed by 3 km per hour?
- A)  $\frac{x(a-3)}{x+3}$   
 B)  $\frac{x-3}{ax+3}$   
 C)  $\frac{x-1}{a+3}$   
 D)  $\frac{x+3}{x^2}$   
 E)  $\frac{x(a-3)}{x+3a-9}$
16.  $(2x-1)(x-1) + (2x-1) \cdot (x-4) = 0$  eşitliğini sağlayan x değerlerinin toplamı kaçtır ?  
 What is the sum of the x values that satisfy the equation?
- A)  $\frac{2}{3}$  B) 2 C)  $\frac{2}{5}$  D) 3 E)  $\frac{2}{7}$
17. Tepe noktası analitik düzlemin II. bölgesinde olan  $y = ax^2 + bx + c$  paraboluna göre aşağıdakilerden hangisi doğrudur ?  
 The peak of the analytical plane is in the II region, which of the following is true according to the  $y = ax^2 + bx + c$  parabola?
- A)  $a \cdot (c-b) > 0$   
 B)  $(a+b) \cdot c > 0$   
 C)  $(a-c) \cdot b < 0$   
 D)  $a \cdot b \cdot c < 0$   
 E)  $a \cdot b + c > 0$
18. Aşağıda verilen önermelerden hangisi doğrudur ?  
 Which of the following propositions is true?
- A)  $\forall x \in \mathbb{R}, x^2 > x$   
 B)  $\exists x \in \mathbb{R}, x^2 < x$   
 C)  $\forall x \in \mathbb{R}, x > \frac{1}{x}$   
 D)  $\forall x \in \mathbb{R}, x^2 > \frac{x^2}{1}$   
 E)  $\exists x \in \mathbb{R}, x-1 > x$

19.  $\lim_{\theta \rightarrow 0} \frac{\sin 2\theta + 2 \sin \theta}{\cos 2\theta - 1} + \csc \theta = ?$

- A)  $\sin \theta$  B)  $\cot \theta$  C)  $-\cot \theta$  D)  $-\sec \theta$  E)  $\cos \theta$

23. p: x, 3' ün katı olan bir tam saydır.

r: x, y çarpımı, 15' in katı bir tam saydır.

r: x, y is an integer that is a multiple of 15.

q: y 5' in katı olan bir tam saydır.

q: y is an integer that is a multiple of 5.

Buna göre

I.  $(p \vee q) \Rightarrow r$

II.  $(p \vee r) \Rightarrow q$

III.  $(q \vee p) \Rightarrow r$

Ünemelelerinden hangileri kesinlikle doğrudur ?  
Which of its propositions are absolutely true?

A) I. B) II. C) I, III.

D) II, III. E) I, II, III.

20.  $\lim_{x \rightarrow 0} \frac{\sin x}{3 - \sqrt{9 - x}} = ?$

- A) 6 B) 12 C) 18 D) 36 E) 48

21. x, y, z bir aritmetik dizinin ardışık üç terimi,

$5^x, 5^{2y+4}, 5^z$  bir geometrik dizinin ardışık üç terimidir.

Buna göre, y kaçtır ?

x, y, z are three consecutive terms of an arithmetic sequence,  $5^x, 5^{2y+4}, 5^z$  are three consecutive terms of a geometric sequence.

So what is y?

- A) 6 B) 5 C) 4 D) 2 E) -4

22.  $\int_4^{\frac{1}{4}} \frac{1 + \sqrt{x}}{x} dx = \int_3^{\frac{2}{3}} \frac{k(x-1)^3}{x} dx = k = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

25.  $(a_n) = \frac{3n^2 + 5n + 2}{n^2 + 4n} \Rightarrow \lim_{n \rightarrow \infty} (a_n) = ?$

- A) 1 B) 2 C) 6 D) 4 E) 3

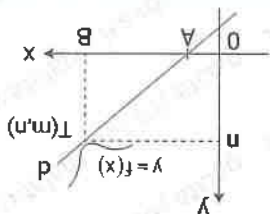
$|AB| = 2 \cdot |OA| = 2 \cdot |BT|$   $h(x) = x \cdot f^2(x) \Rightarrow h'(m) = \frac{m \cdot n}{m \cdot n}$

above.

The line d, which is the tangent of the function y = f(x) at the point T(m, n), is given in the figure

Ünkarıdaki şekilde y = f(x) fonksiyonu ile T(m, n) noktasındaki teğeti olan d doğrusu verilmiştir.

The line d, which is the tangent of the function y = f(x) at the point T(m, n), is given in the figure



26.  $f\left(\sqrt{x} + \frac{1}{\sqrt{x}}\right) = x^2 + \frac{1}{x^2} \Rightarrow f'(3) = ?$

- A) 84 B) 88 C) 90 D) 96 E) 98

29.  $x, y, z \in \mathbb{Z}$   
 $\frac{y+z}{x} > \frac{x+z}{y}$

29. aşağıdakilerden hangisi kesinlikle doğrudur ?  
 Which of the following is absolutely true?

- A)  $y > z$  B)  $x > z$  C)  $x > y$   
 D)  $y > x$  E)  $z > x$

27. Aşağıdakilerden hangisi yanlıştır ?  
 Which of the following is false?

- A)  $\int_1^7 x^{15} dx = 0$   
 B)  $\int_3^{-3} x^8 dx = 2 \int_0^3 x^8 dx$   
 C)  $\int_{-\pi/4}^{\pi/4} \cos x dx = 2 \cdot \int_{\pi/4}^0 \cos x dx$   
 D)  $\int_{\pi/4}^{3\pi/4} \sin x dx = 2 \cdot \int_{\pi/4}^0 \sin x dx$   
 E)  $\int_2^{-2} x^3 dx = 0$

28. 100223 altı basamaklı sayısının rakamlarının yerleri değiştirilerek altı basamaklı kaç gitt sayı yazılabilir ?  
 How many even numbers with six digits can be written by exchanging the digits of the six-digit number 100223?

- A) 720 B) 120 C) 96 D) 84 E) 60



30. p: a tek sayı / p: a odd number  
 q: b gitt sayı / q: b even number  
 r: a + b tek sayı / r: a + b odd number  
 s: a.b gitt sayı / s: a.b even number  
 Örneklere veriliyor / propositions are given.  
 Buna göre, her a ve b tam sayısı için  
 Accordingly, for each integer a and b

- I.  $r \wedge s \Rightarrow p \wedge q$   
 II.  $r \Leftrightarrow s$   
 III.  $p \wedge r \Rightarrow q$

30. Örneklere veriliyor / propositions are given.  
 Buna göre, her a ve b tam sayısı için  
 Accordingly, for each integer a and b

- A) I. B) III. C) II. D) I. E) II. III.

1.  $\overline{A} = (7, 8)$   $\overline{B} = (-9, -9)$   $\overline{BA} = ?$

- A)  $(-2, -1)$  B)  $(-2, 1)$  C)  $(2, -1)$   
 D)  $(16, 17)$  E)  $(-16, -17)$



2. A (3,4) B (-2,-1) C (2,-7) D (-x+2, -y-5) noktaları veriliyor / points are given.

$\overline{AC} = \overline{BD} = x - y = ?$

- A) 13 B) 10 C) 9 D) 8 E) 3

6.  $\underline{U} = (2, -2)$

$\underline{V} = (6, -4)$

$\Rightarrow \langle \underline{U}, \underline{V} \rangle = ?$

- A) 0 B) -4 C) 4 D) 10 E) 20

7.  $|\underline{U}| = 8, |\underline{V}| = 16$   $\underline{U}$  ile  $\underline{V}$  arasındaki açı  $135^\circ$  Since the angle between  $\underline{U}$  and  $\underline{V}$  is  $135^\circ$  degrees

- A)  $-32\sqrt{2}$  B)  $-64\sqrt{2}$  C)  $32\sqrt{2}$  D)  $64\sqrt{2}$  E)  $108\sqrt{2}$

- A) I ve II B) yalnız II C) I ve III D) II ve III E) I, II, III

hangisi doğrudur ? / Which is true ?

- I.  $3\underline{V} = (-24, -48)$   
 II.  $\frac{4}{\underline{V}} = (-2, -4)$   
 III.  $\frac{8}{\underline{V}} = (1, -2)$

4.  $\underline{A} = (-3, -4)$   $\underline{B} = (2, -9)$   $\underline{U} = (6, y+1)$

$\overline{AB} // \underline{U} = y = ?$

- A) 14 B) 10 C) -9 D) -7 E) -8

5.  $\underline{U} = (3, -7)$   $\underline{V} = (x-9, -6)$   $\underline{U} \perp \underline{V} = x = ?$

- A) -5 B)  $-\frac{7}{48}$  C) -7 D) -8 E) -9

9.

$\underline{U} = (9, -2)$

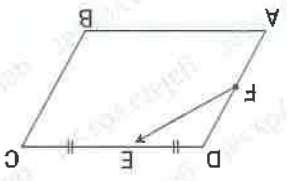
$\underline{V} = (7, 24)$

What is the length of the vertical projection vector of the vector  $\underline{U}$  on  $\underline{V}$ ?

- A)  $\frac{1}{2}$  B)  $\frac{5}{2}$  C)  $\frac{5}{16}$  D)  $\frac{5}{14}$  E) 1

8.

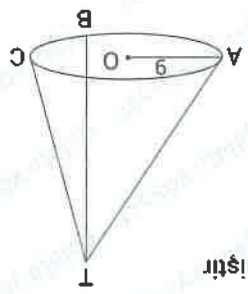
ABCD paralelkenar  
 $|DF| = 3|AF|$   
 $|DE| = |EC|$   
 $\underline{FE}$  'nün  $\overline{AB}$  ve  $\overline{BC}$  cinsinden değeri nedir ?  
 What is  $\underline{FE}$  in terms of  $\overline{AB}$  and  $\overline{BC}$ ?



- A)  $\frac{3}{2}\overline{BC} + \frac{4}{2}\overline{AB}$  B)  $\frac{3}{2}\overline{BC} + \frac{4}{2}\overline{BA}$  C)  $\frac{3}{2}\overline{BC} + \frac{4}{3}\overline{AB}$  D)  $3\overline{AB} - 4\overline{AB}$  E)  $\frac{4}{2}\overline{BC} + \frac{4}{3}\overline{AB}$



10. Şekilde dik koni verilmiştir. Right cone is given



$|TB| = 15$   
 $|AO| = 9$   
 $V_{\text{koni}} = ?$   
 $V_{\text{kone}} = ?$

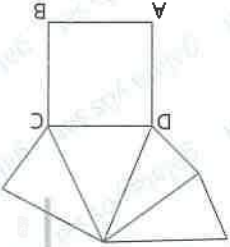
- A)  $1300\pi$   
 B)  $321\pi$   
 C)  $324\pi$   
 D)  $350\pi$   
 E)  $364\pi$

11.  $\vec{A} = (2, 9)$   $\vec{B} = (-1, 5)$  olduğuna göre  $|\vec{A}| = ?$

- A) 1  
 B) 2  
 C) 3  
 D) 4  
 E) 5

12. Yanda açılımı verilen ve taban alanı  $36 \text{ br}^2$  olan kare piramidin açılımının çevresi  $60 \text{ br}$  ise bu piramidin yüksekliği nedir?

If the circumference of the opening of the square pyramid with a base area of  $36 \text{ br}^2$  is  $60 \text{ br}$ , what is the height of the pyramid?

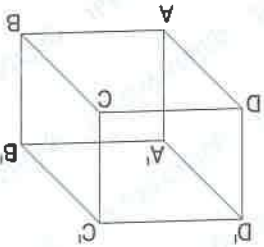


- A)  $\sqrt{14}$   
 B)  $2\sqrt{14}$   
 C)  $3\sqrt{14}$   
 D)  $5\sqrt{14}$   
 E)  $6\sqrt{14}$

14.

(ABCD, A'B'C'D') dikdörtgen prizmanın yüzey alanları 20, 24 ve  $30'$  dur. Bu durumda  $V_{\text{prizma}} = ?$   $V_{\text{prizma}} = ?$

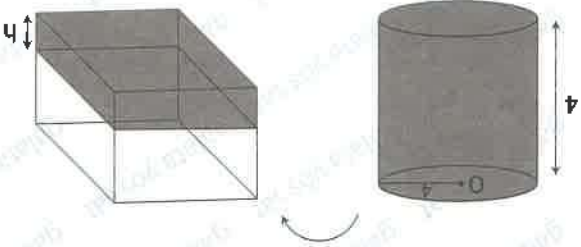
The surface areas of the rectangular prism are 20, 24 and 30.



- A) 100  
 B) 110  
 C) 120  
 D) 140  
 E) 150

15.

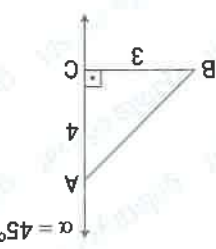
İç su dolu olan silindirik taban çevresi  $32 \text{ cm}$  olan kare prizmaya boşatılıyor. Son durumda su kare prizmada ne kadar yükseklik (h = ?) The cylinder filled with water is discharged into a square prism with a base circumference of  $32 \text{ cm}$ . In the last case, how much does water rise in a square prism (h = ?)



- A)  $\pi$   
 B)  $2\pi$   
 C)  $3\pi$   
 D)  $4\pi$   
 E)  $5\pi$

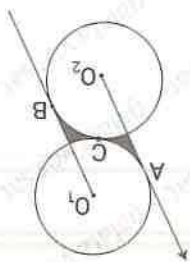
13.

Şekildeki ABC dik üçgeni |AC| kenarı boyunca  $45^\circ$  döndürülüyor. Oluşan şeklin hacmi nedir? The right triangle ABC in the figure is rotated  $45$  degrees along the |AC| side. What is the volume of the formed shape?



- A)  $2\pi$   
 B)  $\frac{3}{2}\pi$   
 C)  $\frac{7}{2}\pi$   
 D)  $4\pi$   
 E)  $\frac{9}{2}\pi$

16.  $O_1$  ve  $O_2$  merkezli eş daireler birbirine  $C$ ' de teğettir.  $A$  ve  $B$  teğet noktaları  $O_1$  ve  $O_2$  merkezli eş daireler teğet noktası  $C$  de teğettir.  $A$  ve  $B$  teğet noktaları  $O_1$  ve  $O_2$  merkezli eş daireler teğet noktası  $C$  de teğettir.  $A$  ve  $B$  teğet noktaları  $O_1$  ve  $O_2$  merkezli eş daireler teğet noktası  $C$  de teğettir.

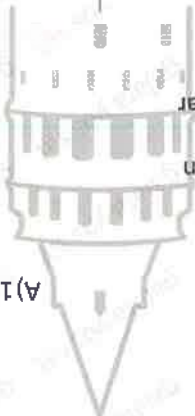
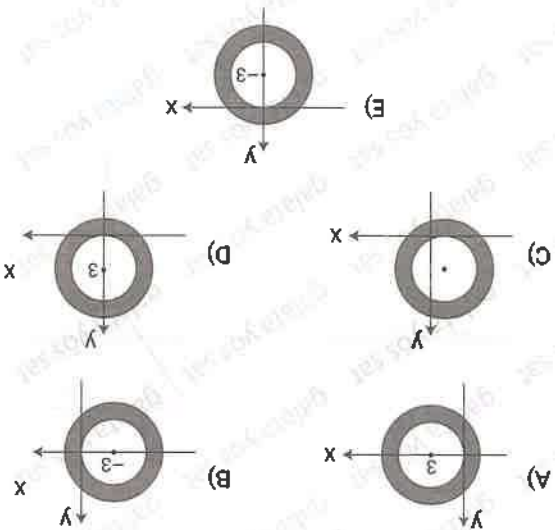


TA = ?  
Shaded area = ?

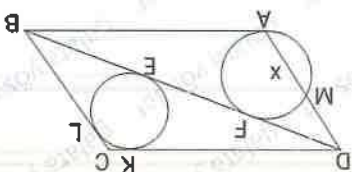
$G(AO_1BO_2) = 8 + 8\sqrt{3}$

- A)  $12\sqrt{3} - 4\pi$
- B)  $12\sqrt{3} + 4\pi$
- C)  $16\sqrt{3} - 8\pi$
- D)  $16\sqrt{3} - 4\pi$
- E)  $16\sqrt{3} - 2\pi$

17.  $x, y \in \mathbb{R}$   
 $A = \{(x, y) \mid 9 \leq x^2 + (y-3)^2 \leq 25\}$   
denklemin belirttiği bölgenin grafini aşağıdakilerden hangisidir?  
Which of the following is the graph of the particular region of the equation?



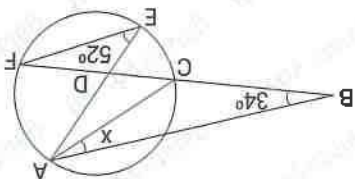
18. ABCD paralelkenar  
 $A, E, F, K, L$  teğet noktaları  
 $A, E, F, K, L$  teğet noktaları



$|MA| = x = ?$

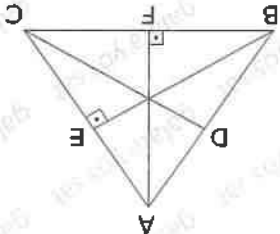
- A)  $\frac{42}{5}$
- B)  $\frac{10}{3}$
- C)  $\frac{11}{11}$
- D) 11
- E) 9

19.  $m(\widehat{ABF}) = 34^\circ$   
 $m(\widehat{AEF}) = 52^\circ$   
 $m(\widehat{BAC}) = x = ?$



- A) 17
- B) 18
- C) 26
- D) 34
- E) 42

20. [AF]  $\perp$  [BC]  
[BE]  $\perp$  [AC]  
[AE]  $\perp$  [BD]  
[BE] =  $h_b$   
[AF] =  $h_a$   
 $|AB| > |BC| > |AC|$   
olduğuna göre  $h_a, h_b, h_c$  arasındaki ilişki nedir?  
Relation between  $h_a, h_b, h_c$



- A)  $h_c > h_a > h_b$
- B)  $h_a > h_b > h_c$
- C)  $h_a > h_b > h_c$
- D)  $h_b > h_a > h_c$
- E)  $h_a > h_c > h_b$

KTS 1		Cevap Anahtarı / Answer key	
10	A	11	C
9	B	12	D
8	B	13	A
7	D	14	B
6	E	15	C
5	C	16	D
4	B	17	E
3	A	18	A
2	D	19	B
1	D	20	C
IQ		Matematik / maths	
Geometri / Geometry		Geometri / Geometry	

KTS 2		Cevap Anahtarı / Answer key	
10	E	11	A
9	E	12	E
8	C	13	C
7	A	14	A
6	B	15	E
5	D	16	A
4	B	17	B
3	C	18	D
2	E	19	A
1	A	20	E
IQ		Matematik / maths	
Geometri / Geometry		Geometri / Geometry	

KTS 3		Cevap Anahtarı / Answer key	
10	D	11	C
9	B	12	B
8	C	13	A
7	A	14	C
6	A	15	E
5	E	16	D
4	C	17	A
3	A	18	B
2	D	19	E
1	C	20	A
IQ		Matematik / maths	
Geometri / Geometry		Geometri / Geometry	

KTS 4		Cevap Anahtarı / Answer key	
10	E	11	D
9	C	12	A
8	A	13	C
7	C	14	D
6	A	15	E
5	E	16	B
4	D	17	A
3	C	18	D
2	A	19	B
1	B	20	E
IQ		Matematik / maths	
Geometri / Geometry		Geometri / Geometry	



KTS 5		Gevap Anahatan / Answer key	
10	E	20	A
9	B	19	A
8	D	18	E
7	C	17	B
6	B	16	A
5	C	15	C
4	E	14	E
3	B	13	C
2	D	12	B
1	A	11	A
IQ		Matematik / maths	
10	C	30	C
9	C	29	C
8	A	28	A
7	A	27	B
6	D	26	D
5	C	25	C
4	C	24	A
3	A	23	B
2	D	22	C
1	E	21	D
IQ		Matematik / maths	
10	E	20	B
9	B	19	D
8	D	18	E
7	C	17	A
6	A	16	D
5	C	15	C
4	E	14	E
3	B	13	A
2	D	12	C
1	A	11	D
IQ		Matematik / maths	
10	E	20	B
9	B	19	D
8	D	18	E
7	C	17	A
6	A	16	D
5	C	15	C
4	E	14	E
3	B	13	A
2	D	12	C
1	A	11	D
IQ		Matematik / maths	
10	E	20	B
9	B	19	D
8	D	18	E
7	C	17	A
6	A	16	D
5	C	15	C
4	E	14	E
3	B	13	A
2	D	12	C
1	A	11	D
IQ		Matematik / maths	
10	E	20	B
9	B	19	D
8	D	18	E
7	C	17	A
6	A	16	D
5	C	15	C
4	E	14	E
3	B	13	A
2	D	12	C
1	A	11	D
IQ		Matematik / maths	
10	E	20	B
9	B	19	D
8	D	18	E
7	C	17	A
6	A	16	D
5	C	15	C
4	E	14	E
3	B	13	A
2	D	12	C
1	A	11	D
IQ		Matematik / maths	

KTS 6		Gevap Anahatan / Answer key	
10	E	20	A
9	A	19	C
8	B	18	B
7	C	17	C
6	D	16	E
5	C	15	C
4	C	14	B
3	B	13	A
2	E	12	D
1	D	11	D
IQ		Matematik / maths	
10	B	20	A
9	C	19	D
8	E	18	C
7	A	17	C
6	D	16	D
5	A	15	B
4	A	14	A
3	D	13	D
2	A	12	D
1	B	11	C
IQ		Matematik / maths	
10	E	20	A
9	A	19	C
8	B	18	B
7	C	17	D
6	C	16	C
5	B	15	E
4	C	14	E
3	B	13	D
2	C	12	D
1	C	11	C
IQ		Matematik / maths	
10	E	20	A
9	A	19	C
8	B	18	B
7	C	17	D
6	C	16	C
5	B	15	E
4	C	14	E
3	B	13	D
2	C	12	D
1	C	11	C
IQ		Matematik / maths	

KTS 7		Gevap Anahatan / Answer key	
10	C	20	C
9	D	19	A
8	B	18	B
7	A	17	C
6	E	16	E
5	C	15	E
4	A	14	A
3	B	13	E
2	C	12	E
1	A	11	A
IQ		Matematik / maths	
10	C	20	C
9	D	19	A
8	B	18	B
7	A	17	C
6	E	16	E
5	C	15	E
4	A	14	A
3	B	13	E
2	C	12	E
1	A	11	A
IQ		Matematik / maths	
10	C	20	C
9	D	19	A
8	B	18	B
7	A	17	C
6	E	16	E
5	C	15	E
4	A	14	A
3	B	13	E
2	C	12	E
1	A	11	A
IQ		Matematik / maths	

KTS 8		Gevap Anahatan / Answer key	
10	D	20	E
9	B	19	A
8	A	18	A
7	E	17	B
6	C	16	D
5	C	15	E
4	B	14	A
3	D	13	B
2	A	12	E
1	C	11	E
IQ		Matematik / maths	
10	D	20	E
9	B	19	A
8	A	18	A
7	E	17	B
6	C	16	D
5	C	15	E
4	B	14	A
3	D	13	B
2	A	12	E
1	C	11	E
IQ		Matematik / maths	
10	D	20	E
9	B	19	A
8	A	18	A
7	E	17	B
6	C	16	D
5	C	15	E
4	B	14	A
3	D	13	B
2	A	12	E
1	C	11	E
IQ		Matematik / maths	

KTS 12		Cevap Anahtarı / Answer key																																							
10	D	19	A	18	E	17	B	16	B	15	A	14	D	13	A	12	C	11	E	1	A	21	A	22	A	23	B	24	A	25	C	26	C	27	D	28	C	29	B	30	E
IQ										Matematik / maths										Geometri / Geometry																					

KTS 11		Cevap Anahtarı / Answer key																																							
10	D	19	A	18	C	17	B	16	B	15	C	14	D	13	D	12	B	11	A	1	D	21	B	22	E	23	C	24	D	25	A	26	D	27	A	28	E	29	D	30	C
IQ										Matematik / maths										Geometri / Geometry																					

KTS 10		Cevap Anahtarı / Answer key																																							
10	A	19	E	18	A	17	C	16	B	15	B	14	C	13	A	12	D	11	B	1	E	21	A	22	B	23	C	24	E	25	B	26	B	27	B	28	E	29	C	30	A
IQ										Matematik / maths										Geometri / Geometry																					

KTS 9		Cevap Anahtarı / Answer key																																							
10	A	19	D	18	B	17	A	16	E	15	E	14	C	13	D	12	D	11	B	1	A	21	A	22	E	23	B	24	C	25	B	26	D	27	B	28	A	29	D	30	C
IQ										Matematik / maths										Geometri / Geometry																					



KTS 14		Cevap Anahtarı / Answer key									
10	10	C	20	E	30	D	10	D	30	D	D
9	9	B	19	A	29	D	9	C	29	C	C
8	8	B	18	A	28	D	8	D	28	D	D
7	7	D	17	C	27	A	7	D	27	A	A
6	6	E	16	B	26	A	6	B	26	A	A
5	5	B	15	B	25	C	5	A	25	D	C
4	4	E	14	D	24	C	4	E	24	C	C
3	3	D	13	B	23	B	3	C	23	B	B
2	2	C	12	A	22	A	2	B	22	A	A
1	1	E	11	C	21	B	1	E	21	B	B
IQ		Matematik / maths									
Geometri / Geometry											

KTS 15		Cevap Anahtarı / Answer key									
10	10	B	20	D	30	D	10	D	30	D	D
9	9	C	19	A	29	B	9	C	29	B	B
8	8	B	18	D	28	C	8	A	28	C	C
7	7	B	17	B	27	A	7	D	27	B	A
6	6	C	16	C	26	D	6	D	26	D	B
5	5	A	15	C	25	A	5	C	25	C	A
4	4	D	14	A	24	D	4	E	24	A	D
3	3	A	13	B	23	D	3	D	23	E	C
2	2	E	12	A	22	A	2	A	22	E	E
1	1	C	11	B	21	D	1	E	21	D	C
IQ		Matematik / maths									
Geometri / Geometry											

KTS 16		Cevap Anahtarı / Answer key									
10	10	B	20	E	30	B	10	B	30	E	A
9	9	C	19	C	29	D	9	B	29	C	E
8	8	E	18	B	28	E	8	A	28	B	D
7	7	E	17	D	27	A	7	B	27	C	C
6	6	A	16	B	26	B	6	C	26	A	A
5	5	A	15	B	25	A	5	D	25	D	E
4	4	A	14	C	24	D	4	C	24	B	B
3	3	E	13	C	23	B	3	D	23	E	E
2	2	B	12	D	22	C	2	E	22	A	D
1	1	A	11	C	21	A	1	B	21	C	A
IQ		Matematik / maths									
Geometri / Geometry											

KTS 13		Cevap Anahtarı / Answer key									
10	10	C	20	E	30	A	10	A	30	E	B
9	9	C	19	C	29	C	9	A	29	C	D
8	8	E	18	B	28	A	8	B	28	B	D
7	7	C	17	E	27	E	7	B	27	C	B
6	6	C	16	B	26	D	6	D	26	A	D
5	5	D	15	C	25	D	5	C	25	D	C
4	4	A	14	C	24	D	4	A	24	E	A
3	3	B	13	D	23	B	3	E	23	C	A
2	2	B	12	C	22	D	2	D	22	E	E
1	1	C	11	B	21	A	1	A	21	C	C
IQ		Matematik / maths									
Geometri / Geometry											

**KTS 20**

Cevap Anahtarı / Answer key

10	D	11	A	21	D	1	C	11	A	21	E	1	B	11	A
9	E	19	A	29	B	9	C	19	A	29	B	9	D	19	B
8	B	18	C	28	D	8	D	18	B	28	A	8	C	18	C
7	D	17	E	27	D	7	E	17	B	27	C	7	C	17	B
6	A	16	A	26	B	6	B	16	A	26	C	6	D	16	D
5	E	15	C	25	C	5	A	15	C	25	B	5	E	15	E
4	C	14	E	24	C	4	E	14	E	24	D	4	C	14	A
3	A	13	E	23	C	3	A	13	C	23	D	3	E	13	C
2	B	12	B	22	A	2	B	12	C	22	A	2	C	12	C
1	D	11	A	21	D	1	C	11	A	21	E	1	B	11	A
<b>IQ</b>															
<b>Matematik / maths</b>															
<b>Geometri / Geometry</b>															

**KTS 19**

Cevap Anahtarı / Answer key

10	D	11	C	21	B	1	C	11	A	21	D	1	D	11	D
9	C	19	A	29	A	9	A	19	A	29	A	9	E	19	E
8	E	18	E	28	E	8	D	18	A	28	E	8	D	18	E
7	A	17	A	27	B	7	A	17	C	27	C	7	D	17	B
6	E	16	D	26	D	6	D	16	C	26	A	6	A	16	E
5	B	15	D	25	C	5	B	15	E	25	C	5	E	15	C
4	C	14	A	24	B	4	D	14	E	24	C	4	A	14	D
3	D	13	E	23	E	3	E	13	A	23	E	3	B	13	A
2	A	12	A	22	D	2	D	12	E	22	C	2	D	12	A
1	C	11	B	21	C	1	A	11	A	21	D	1	D	11	D
<b>IQ</b>															
<b>Matematik / maths</b>															
<b>Geometri / Geometry</b>															

**KTS 18**

Cevap Anahtarı / Answer key

10	A	20	E	30	C	10	A	20	A	30	A	10	D	20	D
9	D	19	B	29	B	9	A	19	C	29	C	9	E	19	A
8	A	18	E	28	E	8	C	18	C	28	D	8	D	18	C
7	C	17	D	27	B	7	A	17	E	27	E	7	A	17	E
6	A	16	B	26	D	6	C	16	B	26	E	6	A	16	A
5	B	15	D	25	C	5	D	15	A	25	A	5	D	15	C
4	C	14	E	24	E	4	D	14	A	24	D	4	D	14	A
3	D	13	C	23	A	3	B	13	D	23	B	3	A	13	E
2	E	12	A	22	C	2	C	12	E	22	D	2	E	12	D
1	A	11	B	21	D	1	B	11	E	21	E	1	A	11	C
<b>IQ</b>															
<b>Matematik / maths</b>															
<b>Geometri / Geometry</b>															

**KTS 17**

Cevap Anahtarı / Answer key

10	B	20	A	30	A	10	A	20	C	30	A	10	D	20	B
9	E	19	B	29	C	9	C	19	C	29	D	9	E	19	A
8	A	18	D	28	C	8	E	18	E	28	E	8	A	18	A
7	E	17	B	27	E	7	E	17	C	27	C	7	D	17	C
6	D	16	A	26	E	6	C	16	B	26	B	6	C	16	C
5	B	15	A	25	B	5	D	15	C	25	B	5	B	15	D
4	B	14	C	24	B	4	A	14	D	24	D	4	C	14	B
3	A	13	B	23	D	3	E	13	A	23	A	3	D	13	A
2	A	12	D	22	A	2	E	12	D	22	D	2	B	12	A
1	D	11	A	21	B	1	C	11	B	21	B	1	E	11	C
<b>IQ</b>															
<b>Matematik / maths</b>															
<b>Geometri / Geometry</b>															

KTS 24		Cevap Anahtarı / Answer Key	
10	B	20	C
9	A	19	C
8	D	18	E
7	B	17	E
6	D	16	D
5	B	15	C
4	A	14	A
3	E	13	C
2	B	12	B
1	C	11	A
10	A	21	B
9	D	20	C
8	E	18	B
7	E	17	B
6	D	16	C
5	E	15	A
4	D	14	B
3	C	13	D
2	A	12	B
1	B	11	A
IQ		Matematik / maths	
Geometri / Geometry		Geometri / Geometry	

KTS 23		Cevap Anahtarı / Answer Key	
10	D	20	D
9	A	19	B
8	D	18	C
7	C	17	C
6	B	16	E
5	D	15	E
4	B	14	A
3	E	13	C
2	C	12	E
1	A	11	A
10	E	30	E
9	B	29	B
8	D	28	D
7	C	27	C
6	E	26	A
5	A	25	A
4	B	24	D
3	D	23	D
2	A	22	E
1	B	21	D
IQ		Matematik / maths	
Geometri / Geometry		Geometri / Geometry	

KTS 22		Cevap Anahtarı / Answer Key	
10	B	20	A
9	E	19	B
8	A	18	E
7	E	17	A
6	B	16	D
5	E	15	B
4	A	14	D
3	D	13	C
2	C	12	A
1	D	11	E
10	C	30	C
9	D	29	D
8	B	28	B
7	A	27	A
6	E	26	B
5	D	25	E
4	C	24	C
3	D	23	A
2	C	22	B
1	B	21	A
IQ		Matematik / maths	
Geometri / Geometry		Geometri / Geometry	

KTS 21		Cevap Anahtarı / Answer Key	
10	C	20	E
9	C	19	C
8	D	18	E
7	B	17	A
6	D	16	B
5	B	15	B
4	C	14	A
3	A	13	B
2	B	12	D
1	D	11	A
10	E	30	E
9	D	29	B
8	A	28	C
7	D	27	B
6	E	26	E
5	A	25	B
4	D	24	E
3	C	23	E
2	D	22	D
1	E	21	C
IQ		Matematik / maths	
Geometri / Geometry		Geometri / Geometry	



KTS 28		Cevap Anahtar / Answer key																					
1	B	11	A	11	D	21	E	1	A	11	B	21	B	1	B	1	E	11	B	1	E	11	B
2	D	12	B	12	E	22	D	2	D	12	E	22	B	2	B	2	C	12	D	2	C	12	D
3	B	13	D	13	B	23	C	3	D	13	B	23	E	3	D	3	D	13	B	3	D	13	B
4	D	14	C	14	C	24	A	4	A	14	D	24	A	4	D	4	D	14	D	4	D	14	D
5	C	15	E	15	B	25	A	5	A	15	B	25	C	5	B	5	B	15	C	5	B	15	C
6	E	16	B	16	A	26	B	6	B	16	C	26	E	6	D	6	D	16	E	6	D	16	E
7	D	17	C	17	E	27	E	7	E	17	C	27	B	7	B	7	C	17	D	7	B	17	D
8	A	18	D	18	D	28	A	8	A	18	B	28	E	8	A	8	C	18	A	8	C	18	A
9	D	19	A	19	B	29	C	9	C	19	C	29	C	9	D	9	A	19	A	9	D	19	D
10	B	20	C	20	D	30	E	10	E	20	E	30	E	10	B	10	A	20	A	10	C	20	B
IQ												Matematik / maths										Geometri / Geometry	

KTS 27		Cevap Anahtar / Answer key																					
1	B	11	D	11	B	21	D	1	D	11	B	21	A	1	A	1	B	11	B	1	B	11	B
2	D	12	C	12	A	22	A	2	A	12	B	22	E	2	A	2	A	12	D	2	A	12	D
3	D	13	A	13	B	23	A	3	A	13	D	23	C	3	C	3	E	13	E	3	E	13	D
4	C	14	E	14	E	24	B	4	B	14	D	24	E	4	D	4	B	14	C	4	B	14	C
5	A	15	D	15	C	25	C	5	C	15	B	25	E	5	B	5	B	15	A	5	B	15	A
6	B	16	B	16	C	26	E	6	E	16	B	26	D	6	D	6	C	16	B	6	C	16	B
7	E	17	A	17	A	27	D	7	D	17	A	27	B	7	B	7	C	17	E	7	C	17	E
8	A	18	C	18	C	28	A	8	A	18	E	28	E	8	A	8	D	18	A	8	D	18	A
9	B	19	A	19	B	29	A	9	A	19	C	29	C	9	D	9	A	19	A	9	A	19	B
10	D	20	D	20	E	30	B	10	B	20	E	30	E	10	B	10	A	20	A	10	C	20	D
IQ												Matematik / maths										Geometri / Geometry	

KTS 26		Cevap Anahtar / Answer key																					
1	E	11	D	11	B	21	B	1	D	11	C	21	E	1	E	1	C	11	E	1	C	11	E
2	E	12	C	12	A	22	A	2	E	12	A	22	A	2	A	2	C	12	E	2	C	12	E
3	C	13	E	13	B	23	B	3	E	13	B	23	B	3	B	3	A	13	E	3	A	13	C
4	B	14	A	14	A	24	E	4	D	14	C	24	A	4	D	4	D	14	B	4	D	14	B
5	C	15	A	15	C	25	D	5	D	15	A	25	E	5	E	5	C	15	C	5	C	15	C
6	C	16	D	16	C	26	E	6	E	16	A	26	E	6	E	6	A	16	C	6	A	16	C
7	D	17	E	17	B	27	C	7	B	17	C	27	D	7	D	7	A	17	D	7	A	17	D
8	D	18	B	18	D	28	D	8	D	18	A	28	A	8	D	8	C	18	D	8	C	18	D
9	A	19	A	19	D	29	E	9	A	19	C	29	C	9	C	9	C	19	A	9	C	19	A
10	B	20	A	20	B	30	B	10	C	20	A	30	C	10	D	10	B	20	A	10	B	20	B
IQ												Matematik / maths										Geometri / Geometry	

KTS 25		Cevap Anahtar / Answer key																					
1	B	11	C	11	E	21	C	1	A	11	E	21	E	1	E	1	A	11	E	1	A	11	B
2	D	12	C	12	B	22	D	2	A	12	B	22	B	2	E	2	B	12	D	2	B	12	D
3	C	13	A	13	E	23	B	3	C	13	C	23	C	3	B	3	D	13	C	3	D	13	C
4	C	14	C	14	B	24	D	4	D	14	D	24	D	4	B	4	D	14	C	4	D	14	C
5	B	15	D	15	A	25	E	5	C	15	D	25	A	5	A	5	A	15	B	5	A	15	B
6	A	16	E	16	D	26	C	6	B	16	A	26	C	6	C	6	C	16	A	6	C	16	A
7	A	17	A	17	D	27	A	7	B	17	A	27	E	7	A	7	A	17	A	7	A	17	A
8	C	18	B	18	B	28	E	8	B	18	E	28	E	8	E	8	A	18	C	8	A	18	C
9	C	19	E	19	B	29	B	9	E	19	B	29	B	9	D	9	D	19	C	9	D	19	C
10	A	20	C	20	A	30	A	10	D	20	D	30	B	10	A	10	A	20	A	10	A	20	A
IQ												Matematik / maths										Geometri / Geometry	

**KTS 30**

Cevap Anahtarı / Answer key

10	E	20	C	30	E	10	E	20	D	19	E	30	D	10	C	20	A
9	D	19	C	29	A	9	D	19	E	29	E	29	D	9	C	19	B
8	B	18	E	28	E	8	A	18	B	28	B	28	B	8	A	18	B
7	C	17	B	27	B	7	C	17	E	27	D	27	D	7	B	17	D
6	A	16	D	26	A	6	A	16	D	26	C	26	C	6	E	16	C
5	C	15	B	25	C	5	C	15	B	25	E	25	E	5	A	15	A
4	E	14	D	24	B	4	E	14	D	24	C	24	C	4	D	14	C
3	D	13	C	23	A	3	D	13	C	23	A	23	A	3	A	13	B
2	B	12	A	22	A	2	B	12	D	22	D	22	D	2	E	12	C
1	E	11	D	21	D	1	C	11	D	21	A	21	A	1	D	11	E
<b>IQ</b>				<b>Matematik / maths</b>				<b>Geometri / Geometry</b>									

**KTS 29**

Cevap Anahtarı / Answer key

10	C	20	A	30	D	10	A	20	A	30	B	10	C	20	C	B
9	E	19	E	29	A	9	E	19	C	29	C	9	C	19	C	C
8	B	18	B	28	D	8	A	18	B	28	A	8	A	18	A	E
7	A	17	C	27	E	7	C	17	A	27	D	7	C	17	A	A
6	C	16	D	26	C	6	A	16	C	26	E	6	D	16	C	C
5	E	15	A	25	B	5	B	15	E	25	D	5	A	15	A	A
4	D	14	A	24	C	4	E	14	B	24	B	4	B	14	C	C
3	D	13	B	23	A	3	A	13	E	23	C	3	E	13	C	C
2	C	12	E	22	D	2	A	12	D	22	C	2	C	12	D	D
1	B	11	B	21	E	1	C	11	D	21	E	1	A	11	B	B
<b>IQ</b>				<b>Matematik / maths</b>				<b>Geometri / Geometry</b>								