

1) $x, y \in \mathbb{N}$

$$x \cdot y = 30$$

$$\min(x+y) \Rightarrow x^2 + y^2 = ?$$

- A) 61 B) 65 C) 72 D) 78 E) 81

2) a, b ve c pozitif tam sayıdır.

a, b and c are positive integers.

$$4a + \frac{b}{7} = c$$

olduğuna göre, $a + b + c$ toplamı en az kaçtır?

if so, what is the minimum sum of $a + b + c$?

- A) 13 B) 18 C) 20 D) 21 E) 22

3) $\sqrt[3]{54} \cdot x = \sqrt[2]{127}$
 $x = ?$

- A) 0/15 B) 0/2 C) 0/3
D) 0/45 E) 0/6

4) $\frac{3}{19} + \frac{4}{25} + \frac{5}{31} = x$ olmak üzere,
 $\frac{1}{57} + \frac{1}{75} + \frac{1}{93} = ?$

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

5) $(x-4)^{3-x} = 1$
 $\sum x = ?$

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

6) $\frac{2^x + 4^x + 5^x + 10^x}{4^x + 10^x} = 5 \Rightarrow x = ?$

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

7)

$$\sqrt{42+\sqrt{42+\sqrt{42+\sqrt{\dots}}}} - \sqrt{56-\sqrt{56-\sqrt{56-\sqrt{\dots}}}} = ?$$

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

8) $a = \sqrt{3} + \sqrt{2} \Rightarrow \sqrt{6} = ?$

- A) $a^2 - 5$ B) $a^2 - 6$ C) $\frac{a^2 - 5}{2}$
 D) $\frac{a^2 + 5}{2}$ E) $a^2 + 5$

9) $\frac{a}{b} = \frac{b}{c} = k$

olduğuna göre, aşağıdaki ifadelerden hangisi yanlıştır?

which of the following statements is incorrect?

A) $\frac{a+b}{b} = \frac{b+c}{c} = k+1$

B) $\frac{a^2 + b^2}{b^2 + c^2} = k^2$

C) $\frac{a}{c} = k^2$

D) $\frac{\sqrt{b} + \sqrt{c}}{\sqrt{a} + \sqrt{b}} = \frac{1}{k}$

E) $\frac{a+3b}{b+3c} = \frac{3a-b}{3b-c} = k$

10) a, b ve c birer pozitif reel sayıdır.

a, b and c are positive real numbers.

$$\frac{a}{2} = \frac{b}{3} = \frac{c}{4}$$

olduğuna göre, $\Rightarrow ? > ? > ?$

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

11) $x(2a+3b) + y(2b-a) - 5a - 4b = 0$

eşitliği her (a, b) gerçək sayı ikilisi için sağlandığına göre, x - y farkı kaçtır?

Since equality is satisfied for every real number pair (a, b), what is the x - y difference?

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

$$12) \frac{x \cdot z}{x+z} = 6$$

$$x \cdot y \cdot z = 4(x \cdot y + x \cdot z + y \cdot z)$$

olduğuna göre $\rightarrow y = ?$

- A) 24 B) 12 C) 6 D) 4 E) 3

$$15) x \in \mathbb{Z}$$

$$2x + y < 6$$

$$y + z > 3$$

$$x + z < 12$$

$$\Rightarrow \max(x) = ?$$

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

13) a negatif bir reel sayıdır.

a is a negative real number.

$$\left. \begin{array}{l} 5a^2 - \frac{1}{b} = 41 \\ a^2 - \frac{4}{b} = -7 \end{array} \right\} \Rightarrow a = ?$$

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

$$16) A \in \mathbb{Z}$$

$$2 < x < 8$$

$$-1 < y < 10$$

$$3x - 2y = A \Rightarrow \max(A) = ?$$

- A) 21 B) 22 C) 23 D) 24 E) 25

14) a, b ve c birer rakamdır.

a, b and c are digits.

$$c + 2 < a + 1 < b \Rightarrow \max(a + b + c) = ?$$

- A) 27 B) 24 C) 21 D) 19 E) 17

17) $x^2 < -x$, $y < |y| < y^2$ ve $z < |z|$ olduğuna göre, aşağıdakilerden hangisi daima doğrudur?

which of the following is always true?

A) $yz < xz$ B) $x + y + z > 0$

C) $x \cdot y \cdot z < -1$ D) $x \cdot y \cdot z < 0$

E) $y - z < x$

18) $18 \leq |4x - 6| \leq 22$, $x \in \mathbb{Z}$

$\sum x = ?$

A) 6 B) 2 C) 0 D) -4 E) -7

19) $|x - 3| + |x + 3| = a$

denklemini sağlayan x in 7 farklı tam sayı değeri olduğuna göre, a kaçtır?

Since there are 7 different integer values of x that satisfy the equation, what is a ?

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

20) $n(A \setminus B) = 4x + 7$

$n(B \setminus A) = 5x + 6$

$n(A \cap B') = n(B \cap A')$

$n(A \cap B) = 3 \Rightarrow n(A \cup B) = ?$

A) 21 B) 22 C) 23 D) 24 E) 25

21) $A = \{x \mid 40 \leq x < 150, x = 3k + 1, k \in \mathbb{N}\}$
 $\Rightarrow S(A) = ?$

A) 34 B) 35 C) 36 D) 37 E) 38

22) $A = \{x \mid 10 \leq x \leq 60, x = 2n, n \in \mathbb{N}\}$

$B = \{y \mid 20 \leq y \leq 60, y = 3n, n \in \mathbb{N}\}$

$\Rightarrow s(A \cup B) = ?$

A) 30 B) 31 C) 32 D) 33 E) 34

23) $17^1 \cdot 17^2 \cdot 17^3 \dots 17^{17} \equiv x \pmod{6} \Rightarrow x = ?$

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

24) $Z/7$ de, mod is 7

$$\frac{3^{2011} + 4^{2011}}{6^{2010}} \equiv ? \pmod{7}$$

- A) $\bar{0}$ B) $\bar{1}$ C) $\bar{2}$ D) $\bar{4}$ E) $\bar{6}$

25) $3x + 1 \equiv x + 5 \pmod{8}$

denliğini sağlayan x doğal sayının en küçük üç değerinin toplamı kaçtır?

What is the sum of three smallest values Satisfying above equation?

- A) 14 B) 16 C) 18 D) 12 E) 30

26) $f: \mathbb{R} \rightarrow \mathbb{R}$

$$f(x) = m(x+2) + x(m+1) + 7$$

$$f(x) = c \Rightarrow m = ?$$

- A) -2 B) -1 C) $-\frac{1}{2}$ D) $\frac{1}{2}$ E) 0

27) $x \cdot f(x) - f(x-1) = 4f(x) + 4x - 2$
 $\Rightarrow f(5) - f(4) = ?$

- A) 21 B) 18 C) 15 D) 11 E) 8

28)

$$f\left(\frac{4x-2}{3}\right) = 12x - 6 \text{ ve } f(x) + f^{-1}(x) = \frac{82}{9}$$

$$\Rightarrow x = ?$$

- A) 19 B) 9 C) 8 D) 4 E) 1

29) $(\text{gof})(x) = 3x^2 - \frac{5}{3}$ ve $g\left(\frac{x}{5} + \frac{5}{x}\right) = \frac{20}{x}$

$$\Rightarrow f(1) = ?$$

- A) $\frac{1}{3}$ B) $\frac{7}{3}$ C) $\frac{10}{3}$ D) 4 E) $\frac{21}{4}$

30) a ve 7 sayı tabanını göstermektedir.

a and 7 represent the base number

$$(41)_a \cdot (14)_a = (505)_7 \Rightarrow a = ?$$

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

31)

$$\begin{array}{l} \text{B A N K} \\ \text{G A Y E} \\ \text{T E L A} \\ \text{B A T O} \\ \text{K A L E} \end{array} \left\{ \begin{array}{l} 4 \ 3 \ 2 \ 1 \\ 4 \ 3 \ 8 \ 0 \\ 8 \ 5 \ 6 \ 3 \\ 9 \ 3 \ 7 \ 5 \\ 1 \ 3 \ 6 \ 5 \end{array} \right. \Rightarrow \text{G A Y E} = ?$$

A) 1365 B) 4321

C) 4380

D) 8563

E) 9375

32)

$$\begin{array}{l} 8 \ 7 \ 5 \ 6 \ 1 \ 0 \\ 0 \ 8 \ 7 \ 6 \ 5 \ 2 \\ 6 \ 1 \ 0 \ 2 \ 3 \ 4 \\ 4 \ 1 \ 0 \ 6 \ 5 \ 7 \\ 7 \ 1 \ 6 \ 5 \ 4 \ 0 \end{array} \left\{ \begin{array}{l} \text{m N C B Ç R} \\ \text{L F T M N C} \\ \text{R N C M T F} \\ \text{F N M T R C} \\ \text{C L F M T B} \end{array} \right.$$

$$\Rightarrow 013657 = ?$$

A) CNÇMFT

B) CNÇMTF

C) ENÇFMT

D) TBNCFM

E) CBNÇMT

33) İTALYAN + YANIK = İTALIK

$$\text{mACERA} + \text{ERASmUS} = ?$$

A) mACOSmUS

B) mACESUS

C) mACmUs

D) mACSmUS

E) mACERASmUS

34) $\frac{3}{11} \frac{2}{5} \frac{5}{9} \frac{3}{4} 1 ?$

A) $\frac{4}{3}$

B) $\frac{3}{4}$

C) $\frac{5}{2}$

D) $\frac{6}{5}$

E) $\frac{7}{6}$

35) $0 \ 1 \ 8 \ \sqrt[3]{3} \ ? \ \sqrt[3]{5}$

A) 16

B) 27

C) 64

D) 81

E) 121

36) I. 2 4 6 36 38

II. 11 9 3 1 1

III. 1 1 4 64 67

IV. ? ? ? ? ?

- A) 27 81 33 3 1
 B) 2 8 256 64 4
 C) 512 8 64 4 2
 D) 271 101 201 407 801
 E) 1334 1331 11 8 2

39) $11 \blacktriangle (2 \bullet 9) = 29$

$9 \blacktriangle (6 \bullet 8) = 57$

$16 \blacktriangle (9 \bullet 4) = 52$

$5 \blacktriangle (11 \bullet 4) = ?$

- A) 31 B) 38 C) 44 D) 49 E) 51

37) I. $25 \bullet 18 = 68$

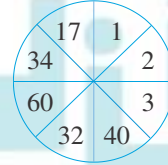
II. $17 \bullet 15 = 49$

III. $24 \bullet 8 = 56$

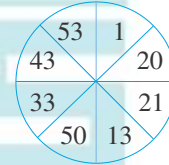
IV. $15 \bullet 23 = ?$

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

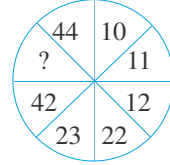
40)



I.



II.



III.

- A) 52 B) 57 C) 64 D) 68 E) 74

38) I. $76 \oslash 50 \Rightarrow 26$

II. $53 \oslash 31 \Rightarrow 22$

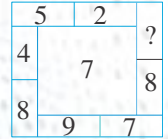
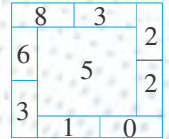
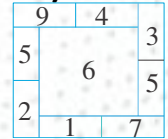
III. $92 \oslash 71 \Rightarrow 21$

IV. $75 \oslash 43 \Rightarrow 32$

V. $67 \oslash 23 \Rightarrow ?$

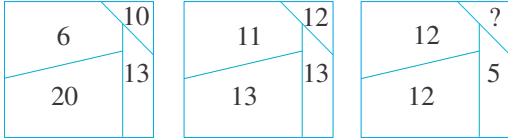
- A) 25 B) 28 C) 33 D) 44 E) 58

41)



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

42)



- A) 20 B) 21 C) 22 D) 23 E) 34

45)

+	a	b	c
a			$5a - 2$
b	11		
c		$2b - 3$	

$\Rightarrow c = ?$

- A) 6 B) 12 C) 18 D) 24 E) 25

43)

\times	a	b	c
a		$4c$	
b			$9a$
c			

$\Rightarrow b = ?$

- A) 4 B) 6 C) 8 D) 9 E) 12

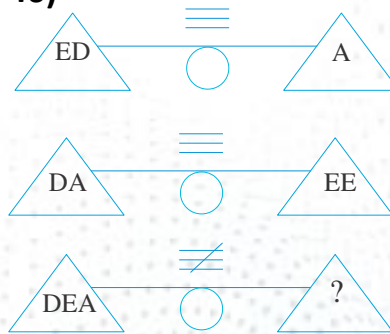
44)

+	a	b	c	\times	a	b	c
a		9		a			42
b			8	b			
c				c			

$a \cdot b = ?$

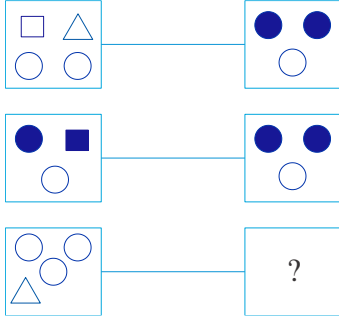
- A) c B) $a \cdot c$ C) $\frac{a \cdot c}{3}$
 D) $\frac{b \cdot c}{4}$ E) $2b + c$

46)



- A) DDA B) EEE C) AA
 D) DDDA E) DDDDDD

47)



- A) □ □ □ B) ● ● ●
 C) ○ ○ ● D) ● ○ ○
 E) ● ● ○

49)

■	4	6	8
5	11		7
7	?	15	
9	23		

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

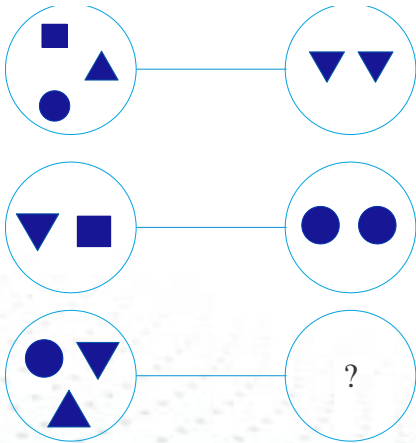
50)

3	2	5	4
4	6	m	3
5	2	3	4
2	n	5	3

⇒ m + n = ?

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

48)



- A) ● ▲ ■ B) ▲ ■ ■ ■
 C) ▲ ▲ ■ ■ D) ■ ■ ■ ▲ ▲
 E) ■ ■ ■ ■ ● ●

51)

2	3	7	2
4	2	9	7
3	2	2	6
2	5	?	13

- A) 6 B) 8 C) 10 D) 12 E) 14

52)

- ● → △
 △ ○ → ○
 (○ ○) ○ → ?
- A) △ B) ● C) ○
 D) ● ● E) ○ ○

53)

		?

- A) B) C) D) E)

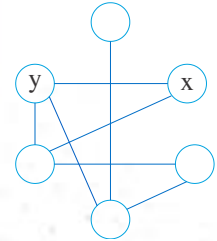
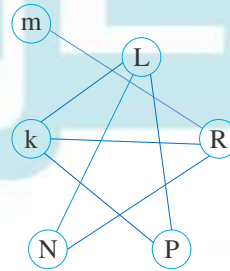
54)

I.				
II.				
III.				
IV.				
V.	?			

II

- A) B)
 C) D)
 E)

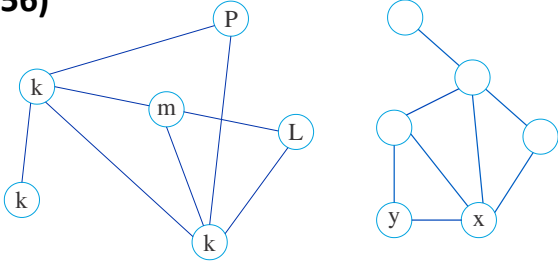
55)



x = ? y = ?

- | | | |
|----|---------------|---------------|
| | $\frac{x}{y}$ | $\frac{y}{x}$ |
| A) | L | K |
| B) | P | K |
| C) | R | L |
| D) | k | p |
| E) | P | R |

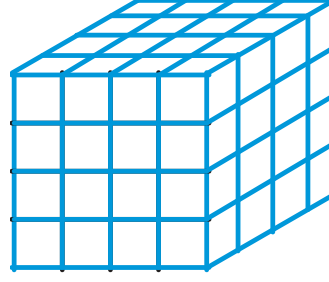
56)



$$x = ? \quad y = ?$$

$$\frac{x}{y}$$

- A) N P
B) K L
C) p m
D) N L
E) m k



küpün 6 yüzeyi kırmızı ile boyanıyor. Daha sonra küp parçalanarak 64 birim kübe ayrılıyor.

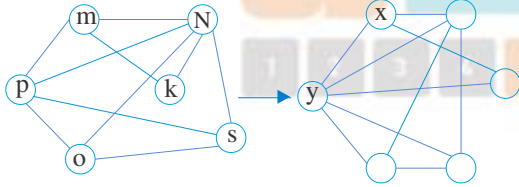
6 surfaces of the cube are painted red. Then the cube is disassembled into 64 unit cubes.

yalnız 1 yüzü boyalı kaç adet küp bulunur?

How many cubes are there with only one side painted?

- A) 18 B) 24 C) 36 D) 48 E) 64

57)



$$\Rightarrow x; y = ?$$

- A) N; O B) m; s C) o; m
D) s; m E) m; N

59) yalnız 2 yüzü boyalı kaç küp vardır?

How many cubes are there with only 2 sides painted?

- A) 11 B) 24 C) 36 D) 48 E) 64

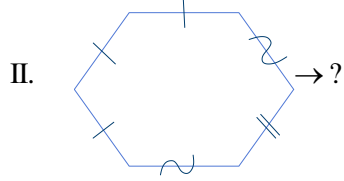
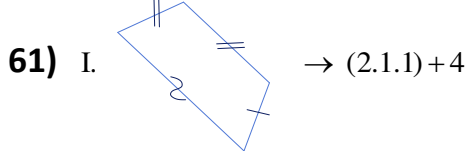
58) 58, 59, 60 sorularını aşağıdaki şekle göre yanıtlayınız.

Answer questions 28, 29, 30 according to the figure below.

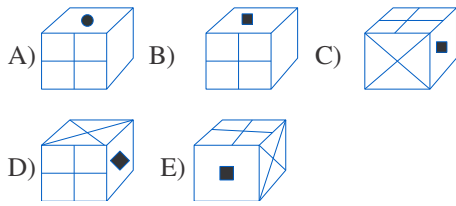
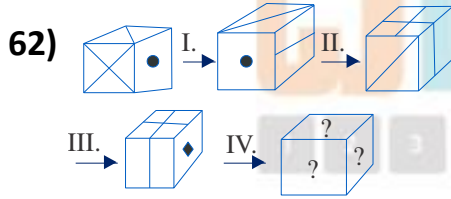
60) Hiç bir yüzü boyalı olmayan kaç küp vardır?

How many cubes are there without any painted faces?

- A) 6 B) 8 C) 10 D) 12 E) 16



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



63)

63, 64, 65, sourulardaki tabloları verilen

sayıları kullanarak her satır, sütun reher köşayen toplamı eşit olacak.

Using the numbers given in the tables in questions 33, 34, 35, the sum of each row, each column and each diagonal will be equal. 19, 20, 21, 22, 23, 24, 27

?		26
	25	

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

64) 23, 25, 27, 28, 29, 30, 31

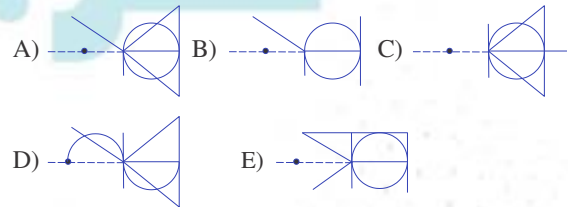
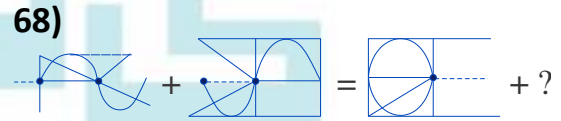
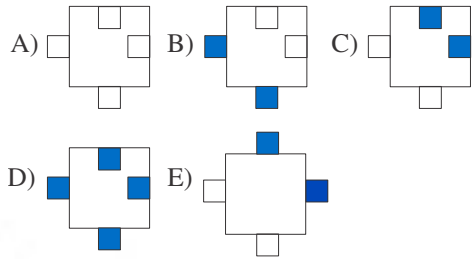
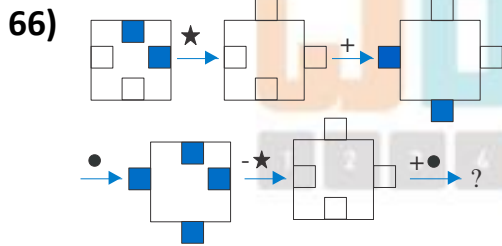
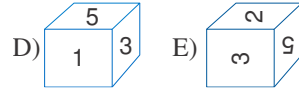
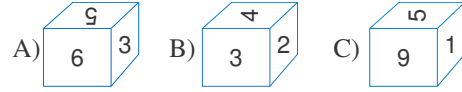
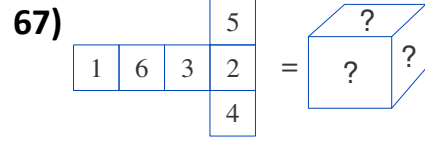
	?	
		?
24		26

- A) 23 B) 25 C) 27 D) 28 E) 29

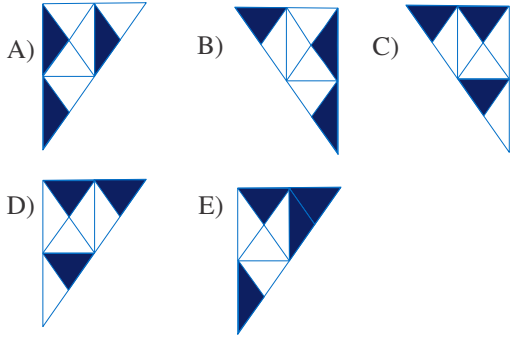
65) 34, 37, 38, 39, 40, 41, 42

35		
		36
	?	

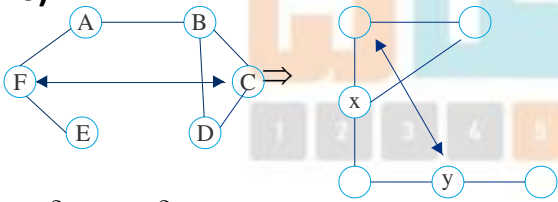
A) 40 B) 39 C) 38 D) 37 E) 34



→ ?



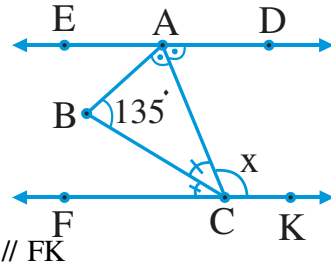
70)



$x = ?$, $y = ?$

- | | x | y |
|----|-----|-----|
| A) | B | F |
| B) | F | B |
| C) | F | A |
| D) | B | A |
| E) | B | E |

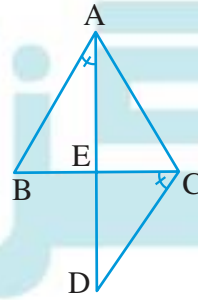
71)



$\Rightarrow m(\text{ACK}) = x = ?$

- A) 110 B) 120 C) 130 D) 140 E) 150

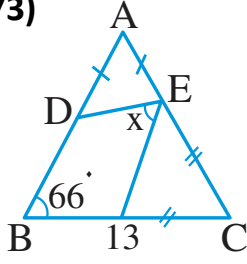
72)



$|AB| = |AC|$
 $m(\text{BAC}) = 52$
 $m(\text{ADC}) = x$
 $x = ?$

- A) 66 B) 64 C) 62 D) 60 E) 58

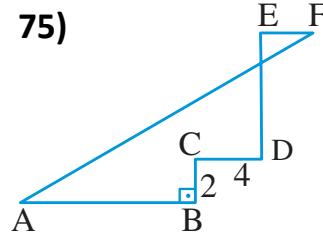
73)



$$\begin{aligned} |AE| &= |AD| \\ |EC| &= |FC| \\ m(\angle DEF) &= x \\ x &= ? \end{aligned}$$

- A) 33 B) 45 C) 52 D) 57 E) 66

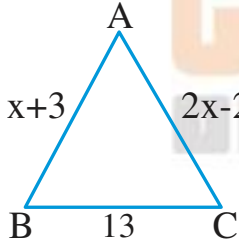
75)



$$\begin{aligned} |AB| &\parallel |CD| \parallel |EF| \\ |BC| &\parallel |DE| \\ |AB| &= 8 \text{ cm} \\ |BC| &= 2 \text{ cm} \\ |CD| &= 4 \text{ cm} \\ |ED| &= 6 \text{ cm} \\ |AF| &= 17 \text{ cm} \\ |EF| &= ? \end{aligned}$$

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

74)

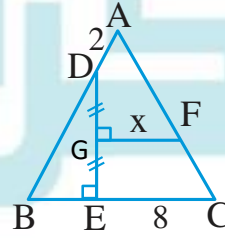


yukarıdaki verilere göre, x in alabileceği kaç farklı tam sayı değeri vardır?

According to the above data, how many different integer values x can take?

- A) 9 B) 11 C) 12 D) 13 E) 14

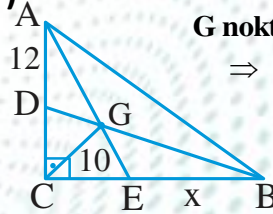
76)



ABC eşkenar üçgen
 $|GF| = x = ?$

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

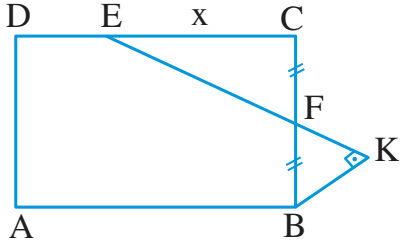
77)



G noktası ağırlık merkezi
 $\Rightarrow |EB| = x = ?$

- A) 6 B) 9 C) 12 D) 15 E) 18

78)



ABCD rectangle / dikdörtgen

$$|CF| = |FB|$$

$$|FK| = 2$$

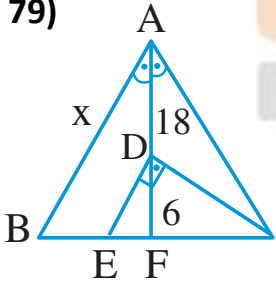
$$|EF| = 8$$

$$|EC| = x$$

$$x = ?$$

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

79)



ABC ikizkenar üçgen

|AF| açıyortay

$$|DE| \parallel |AB|$$

$$|DF| = 6 \text{ cm}$$

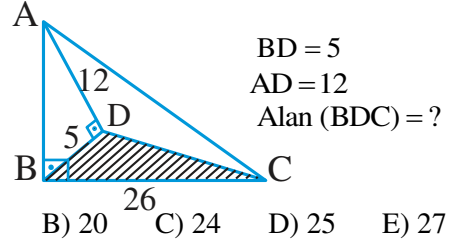
$$|AD| = 18 \text{ cm}$$

$$|AB| = |AC|$$

$$|AB| = x = ?$$

- A) $12\sqrt{5}$ B) $24\sqrt{2}$
C) $24\sqrt{3}$ D) 30 E) $20\sqrt{5}$

80)



$$BD = 5$$

$$AD = 12$$

$$\text{Alan (BDC)} = ?$$

- A) 15 B) 20 C) 24 D) 25 E) 27

گزینه

1 2 3 4 5

