

## ÇÖZÜMLER

1. KUPA   KURS   ASUR   ARAP   SARP  
1245   1236   5623   5354   6534

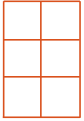
**PARKUR**  
453123

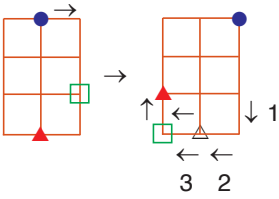
Cevap: B


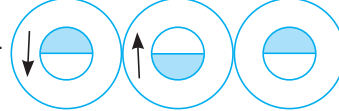
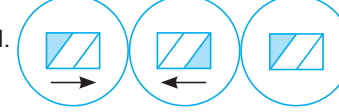
2. KALIP   KAYIP   KAYIK   LAYIK   YARIK  
43125   43625   43624   13624   63724

**PARLAK**  
537134

Cevap: D

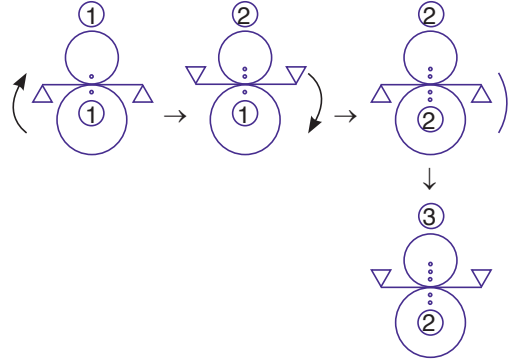
3.    
▲ 2 br (→)  
● 1 br (→)  
□ 3 br (→)



4. I.   
II.   
III. 

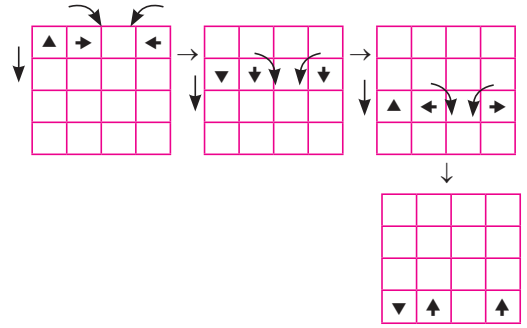
Cevap: B

5.



Cevap: E

6.



Cevap: C

7.  $(b \bullet c) \bullet (d \bullet b) = e \bullet a = a$

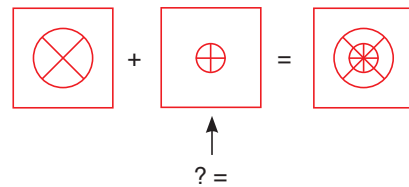
Cevap: D

Cevap: A

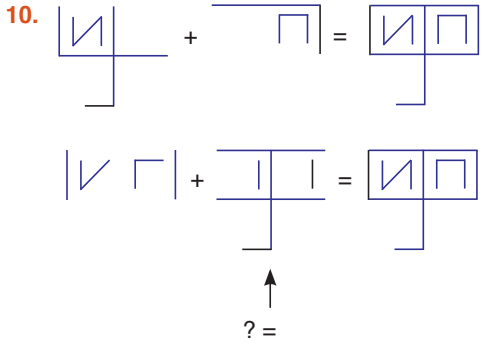
8.  $(x \bullet d) \bullet a = c$   
 $(x \bullet d) = b \quad x = c$

Cevap: C

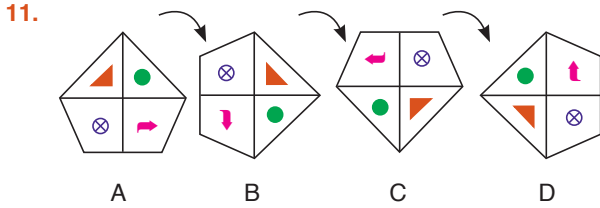
9.



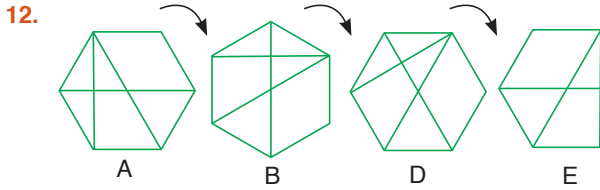
Cevap: C



Cevap: E



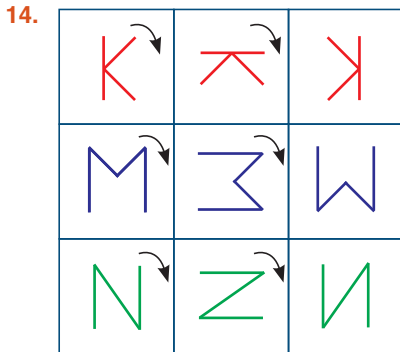
Cevap: E



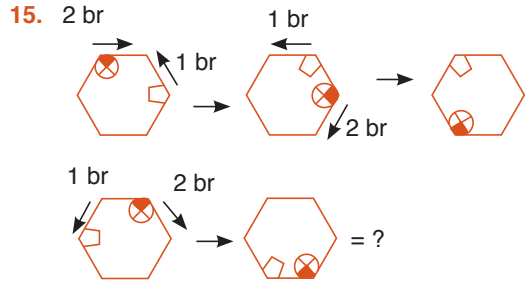
Cevap: C

13.  $4 + 3.5 = 4 + 15 = 19$   
 $6 + 4.4 = 6 + 16 = 22$   
 $8 + 4.3 = 8 + 12 = 20$

Cevap: C



Cevap: C



Cevap: A

16.  $1^2 + 1 = 2$   
 $2^2 + 1 = 5$   
 $3^2 + 1 = 10$   
 $4^2 + 1 = 17$   
 $5^2 + 1 = 26$   
 $6^2 + 1 = 37$   
 $7^2 + 1 = 50$   
 $8^2 + 1 = 65$

Cevap: C

17. 

1	2	3	...	50
1	5	9	...	x

  
 $\underbrace{\quad}_{+4} \quad \underbrace{\quad}_{+4}$

$1 + 4.49 = 1 + 196 = 197$

Cevap: D

18.  $\frac{12}{2\Delta 3} = \frac{2}{2} + \frac{3}{3}$   
 $\frac{12}{2\Delta 3} = 2 \quad 2\Delta 3 = 6$

Cevap: A

19.  $2^x \blacksquare 3^y = 2x + 3y + 2$   
 $\left(8 \blacksquare \frac{1}{9}\right) \blacksquare 9 = (2^3 \blacksquare 3^{-2}) \blacksquare 3^2$   
 $2^3 \blacksquare 3^{-2} = 6 - 6 + 2 = 2$   
 $2^1 \blacksquare 3^2 = 2 + 6 + 2 = 10$

Cevap: A

20.  $a + a = b$

$a + c = 18$

$b + c = 30$

$2a = b$

$- / a + c = 18$

$2a + c = 30$

$a = 12$   $b = 24$   $c = 6$

$b - c = 24 - 6 = 18$

Cevap: C

21.  $a + b = 14$   $\frac{a}{b} = \frac{16}{12}$   $\frac{a}{b} = \frac{4}{3}$

$a + c = 10$

$a = 4k$   $7k = 14$

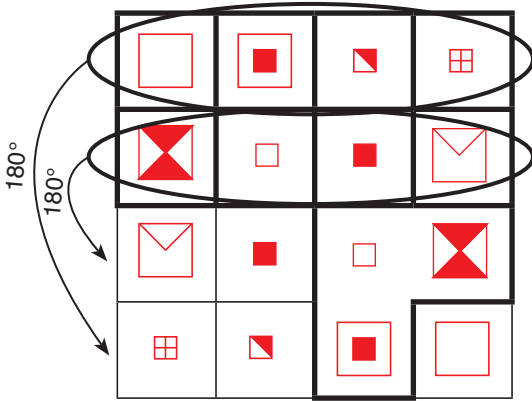
$b = 3k$   $k = 2$

$a = 8$   $b = 6$   $c = 2$

$b + c = 6 + 2 = 8$

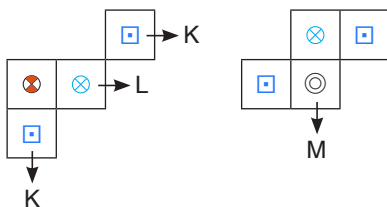
Cevap: B

22.



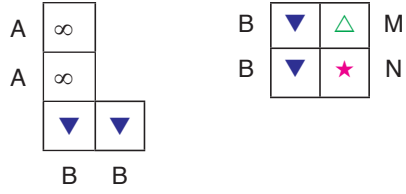
Cevap: E

23.



Cevap: B

24.



Cevap: C

25.  $8 + 3 = 11$   $11.3 = 33$

$7 + 6 = 13$   $13.3 = 39$

$6 + 12 = 18$   $18.3 = 54$

$4 + 8 = 12$   $12.3 = 36$

Cevap: C

26.  $4^3 + 4^2 + 4^1 = 64 + 16 + 4 = 84$

Cevap: A

27.  $4 + 5 - 6 = 3$

$8 + 12 - 5 = 15$

$5 + 7 - 2 = 10$

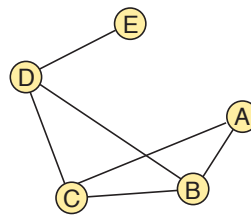
$10 + 11 - 8 = 13$

Cevap: A

28.  $3 \cdot \left( 3.3 + 2.4 + \frac{1}{2} \right) = 3 \cdot (9 + 8 + 2) = 3.19 = 57$

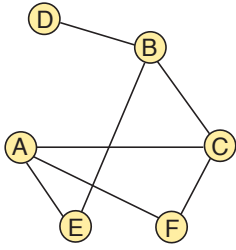
Cevap: D

29.



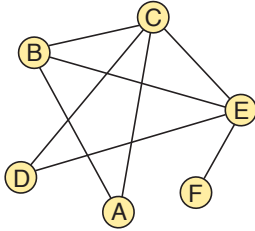
Cevap: D

30.



Cevap: B

31.



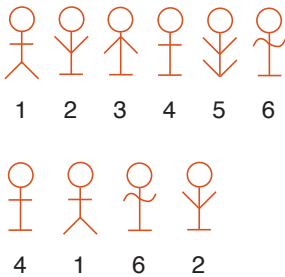
Cevap: D

32.

	8	4	5	17	← 8 + 4 + 5
	3	2	6	11	← 3 + 2 + 6
	1	7	9	17	← 1 + 7 + 9
8 + 3 + 1 →	12	13	20	45	
		↓	↓		
		4 + 2 + 7	17 + 11 + 17		

Cevap: E

33.



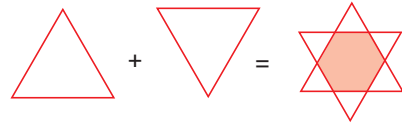
Cevap: A

34.

$$\begin{aligned} \circ \bar{\cap} \triangle \neq &= 1973 \\ \neq \circ \text{ff} \bar{\cap} &= 3129 \\ \Psi \neq \circ \triangle &= 8317 \\ \triangle \text{ff} \Psi \neq &= 7283 \\ \text{ff} \triangle \bar{\cap} \circ &= 2791 \\ \bar{\cap} \neq \text{ff} \circ &= 9321 \end{aligned}$$

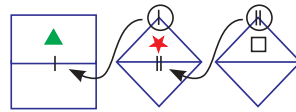
Cevap: C

35.



Cevap: B

36.



Cevap: D

Cevap: D

37.

$$\begin{aligned} \bullet + \blacksquare &= \blacktriangle \\ \blacktriangle + 2\bullet &= 2\blacksquare + \bullet \Rightarrow \blacktriangle + \bullet = 2\blacksquare \\ \bullet + \blacksquare + \bullet &= 2\blacksquare \\ 2\bullet &= \blacksquare \\ 3\bullet &= \blacktriangle \\ \blacktriangle + \blacksquare + 2\bullet &= 3\bullet + 2\bullet + 2\bullet = 7\bullet \\ \blacktriangle + \blacktriangle + \bullet &= 3\bullet + 3\bullet + \bullet = 7\bullet \end{aligned}$$

Cevap: D

38.

$$\begin{aligned} \blacksquare &= 4\bullet \\ 2\blacktriangle &= \blacksquare + \bullet = 5\bullet \\ 2\blacksquare &= 8\bullet \\ 2\blacktriangle + \bullet\bullet\bullet &= 5\bullet + 3\bullet = 8\bullet \end{aligned}$$

Cevap: D

$$39. \frac{a+b}{2} = 10 \quad a+b = 20$$

$$a-c = 8 \quad 3c-c = 8 \quad 2c = 8 \quad \boxed{c=4}$$

$$\frac{a}{c} = 3 \quad a = 3c$$

$$\boxed{d=3}$$

$$\boxed{a=12}$$

$$\boxed{b=8}$$

$$K = b - d = 8 - 3 = 5$$

Cevap: B

$$40. \boxed{c=3}$$

$$\frac{a}{c} = 2 \quad \boxed{a=6}$$

$$b-d = 3 \quad \boxed{b=8}$$

$$c \cdot d = 15 \quad \boxed{d=5}$$

$$K = \frac{a+b}{2} = \frac{6+8}{2} = 7$$

$$L = a - c = 6 - 3 = 3$$

$$K+L = 7+3 = 10$$

Cevap: D

$$41. \left( \frac{1}{3} + \frac{1}{7} - \frac{1}{2} \right) - \left( \frac{1}{3} + \frac{1}{2} - \frac{1}{7} \right) = \frac{2}{7} - 1 = -\frac{5}{7}$$

Cevap: A

$$42. \frac{1+99}{\frac{2}{10} \cdot 100} = \frac{100}{\frac{2}{10} \cdot 100} = \frac{10}{2} = 5$$

Cevap: C

$$43. \frac{2\sqrt{4 \cdot 2} + \sqrt{16 \cdot 2} - (2\sqrt{2} + \sqrt{9 \cdot 2})}{\sqrt{9 \cdot 2}}$$

$$= \frac{4\sqrt{2} + 4\sqrt{2} - (2\sqrt{2} + 3\sqrt{2})}{3\sqrt{2}}$$

$$= \frac{8\sqrt{2} - 8\sqrt{2}}{3\sqrt{2}} = \frac{3\sqrt{2}}{2\sqrt{2}} = 1$$

Cevap: A

$$44. 0,50x = 0,5$$

$$x = 1$$

Cevap: C

$$45. 3x = 5y \Rightarrow x = 5k \quad y = 3k$$

$$2x - 3y = 10k - 9k = k = \frac{3}{2}$$

$$x = \frac{15}{2} \quad y = \frac{9}{2} \quad x + y = \frac{15+9}{2} = \frac{24}{2} = 12$$

Cevap: E

$$46. \sqrt[3]{27 \cdot 2} - \sqrt[3]{8 \cdot 2} + \sqrt[3]{125 \cdot 2} = 3\sqrt[3]{2} - 2\sqrt[3]{2} + 5\sqrt[3]{2} = 6\sqrt[3]{2}$$

Cevap: D

$$47. (\sqrt{x} + \sqrt{y})^2 = (5)^2$$

$$x + 2 \cdot \frac{\sqrt{x} \cdot y}{4} + y = 25$$

$$x + 4 + y = 25 \quad x + y = 21$$

Cevap: B

$$48. a - b = 4$$

$$+ \frac{b - c}{a - c} = 6$$

$$a^2 - ac - ab + bc = a \cdot (a - c) - b \cdot (a - c)$$

$$= \frac{(a-b)}{4} \cdot \frac{(a-c)}{10} = 40$$

Cevap: E

$$49. (6^{a-1})^y = (6^a \cdot \frac{1}{6})^y = (24 \cdot \frac{1}{6})^y = 4^y = (2^y)^2 = 3^2 = 9$$

Cevap: A

$$50. \frac{(x-4) \cdot (x+2) \cdot (x-1)(x+1)}{(x-3)(x+1) \cdot (x+2)(x-1)} = \frac{x-4}{x-3}$$

$$x^2 + 2x - 4x - 8 = x^2 - 2x - 8 = x^2 + ax + b$$

a = -2	b = -8
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Cevap: A

$$51. x^2 + 3 = 5x$$

$$x + \frac{3}{x} = 5 \quad x^2 + 2x \cdot \frac{3}{x} + \frac{5}{x^2} = 25$$

$$x^2 + \frac{9}{x^2} = 19$$

Cevap: C

$$52. \begin{array}{r|l} x^3 - x^2 + x + 3 & x + 1 \\ - / x^3 + x^2 & x^2 - 2x + 3 \\ \hline -2x^2 + x + 3 & \\ - / -2x^2 - 2x & \\ \hline 3x + 3 & \\ - / 3x + 3 & \\ \hline 0 & \end{array}$$

Cevap: A

$$53. m, n \in \mathbb{Z}^+$$

$$43! = 21^m \cdot n$$

21 = 3 · 7 büyük asal çarpan 7 olduğuna göre, 43! içindeki 7 çarpanlarının sayısı kadar 21 çarpanı vardır.

$$43 \overline{) 7} \\ \underline{6} \\ 1$$

$$\max(m) = 6 \text{ olur.}$$

Cevap: C

$$54. \frac{(9! - 8!)^3 - (7! + 6!)^3}{(8!)^3 - (6!)^3}$$

$$= \frac{(8!(9-1!))^3 - (6!(7+1))^3}{(8!)^3 - (6!)^3}$$

$$= \frac{(8!)^3 \cdot 8^3 - (6!)^3 \cdot 8^3}{(8!)^3 - (6!)^3}$$

$$= \frac{8^3((8!)^3 - (6!)^3)}{((8!)^3 - (6!)^3)} = 8^3 = (2^3)^3$$

= 2<sup>9</sup> bulunur.

Cevap: C

55. a ve b reel sayı olduğundan en yakın sayılar

$$\frac{13}{2} \text{ ve } \frac{13}{2} \text{ olarak seçilir.}$$

$$a \cdot b = \frac{13}{2} \cdot \frac{13}{2} = \frac{169}{4} \text{ en büyük değeridir.}$$

Cevap: D

56. a, b, c ∈ Z<sup>+</sup>

$$a < b < c$$

$$(a+b) \cdot (c+1) = 12$$

$$\begin{array}{cc} \downarrow & \downarrow \\ 3 & 4 \end{array}$$

$$a = 1, b = 2 \text{ ve } c = 3 \text{ seçilirse}$$

$$(a-c)^b = (1-3)^2 = (-2)^2 = 4$$

Cevap: D

57. A = 16.K + K<sup>2</sup>

$$K^2 < 16$$

K &lt; 4 olmalı. K'nın en büyük tamsayı değeri 3 olur.

$$A = 16 \cdot 3 + 3^2$$

$$A = 48 + 9$$

$$A = 57$$

Cevap: B

58.  $a, b, c \in \mathbb{Z}^+$ 

$$ABC = 6a - 5 = 10b - 1 = 11c$$

(Her tarafa 11 ekleyelim.)

$$ABC + 11 = 6a + 6 = 10b + 10 = 11c + 11$$

$$\text{OKEK}(6, 10, 11) = 330$$

$$ABC + 11 = 330 \cdot k$$

$$\downarrow$$

$$3$$

$$ABC + 11 = 990$$

ABC = 979 en büyük değeri olur.

Cevap: D

59.  $\frac{3^{20} - 2^{20}}{3^{10} - 2^{10}} = 2^{x+7} + 3^{10}$

$$\frac{(3^{10})^2 - (2^{10})^2}{3^{10} - 2^{10}} = 2^{x+7} + 3^{10}$$

$$\frac{(3^{10} + 2^{10})(\cancel{3^{10} - 2^{10}})}{(\cancel{3^{10} - 2^{10}})} = 2^{x+7} + 3^{10}$$

$$3^{10} + 2^{10} = 2^{x+7} + 3^{10}$$

$$2^{10} = 2^{x+7} \Rightarrow x + 7 = 10$$

$$x = 3 \text{ bulunur.}$$

Cevap: C

60.

 $k < 0$  ise $k > 0$  ise

a.  $k < 0$

$a \rightarrow +$

$a \rightarrow -$

b.  $k > 0$

$b \rightarrow -$

$b \rightarrow +$

c.  $k < 0$

$c \rightarrow +$

$c \rightarrow -$

•  $k < 0$  iken  $a \cdot b + c = 0$  inceleyelim.

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ + & - & + \\ \hline & & - \end{array}$$

•  $k > 0$  iken  $a \cdot b + c = 0$ 

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ - & + & - \\ \hline & & - \end{array}$$

 $k < 0$  iken  $(-) + (+) = 0$  olabilir. $k > 0$  iken  $(-) + (-) = 0$  olamaz!

Buna göre sırasıyla a, b, c = +, -, +

Cevap: A

61.

$$|x + 3| = 7$$

$$|y - 3| = 5$$

$$x + 3 = 7 \text{ ve } x + 3 = -7$$

$$y - 3 = 5 \text{ ve } y - 3 = -5$$

$$x = 4$$

$$x = -10$$

$$y = 8$$

$$y = -2$$

$x - 2y$  en büyük değeri için x büyük y küçük seçilmeli.

$$x - 2y = 4 - 2 \cdot (-2) = 4 + 4 = 8 \text{ olur.}$$

Cevap: C

62.

$$4x^2 + ax + 12 = 0$$

$$x_1 + x_2 = -2$$

$$x_1 + x_2 = -\frac{b}{a}$$

$$a = 4$$

$$b = a \text{ ve}$$

$$c = 12$$

O halde

$$-\frac{a}{4} = -2 \Rightarrow a = 8 \text{ bulunur.}$$

Cevap: A

63.

$3a \cdot b = 5a \cdot c = 6b \cdot c$  eşitliğinin her tarafını (a.b.c) ile bölelim.

$$\frac{3 \cdot a \cdot b}{a \cdot b \cdot c} = \frac{5 \cdot a \cdot c}{a \cdot b \cdot c} = \frac{6 \cdot b \cdot c}{a \cdot b \cdot c}$$

$$\frac{3}{c} = \frac{5}{b} = \frac{6}{a} \text{ eşitliği ters çevirelim.}$$

$$\frac{c}{3} = \frac{b}{5} = \frac{a}{6} = k \text{ dersek}$$

$$c = 3k, b = 5k, a = 6k$$

$$a^2 - b^2 = 99$$

$$(6k)^2 - (5k)^2 = 99 \Rightarrow 36k^2 - 25k^2 = 99$$

$$11k^2 = 99$$

$$k^2 = 9 \Rightarrow k = 3 \text{ olur.}$$

O halde

$$a + b - 2c = 6k + 5k - 6k = 5k$$

$$= 15 \text{ olur.}$$

Cevap: B

$$64. \frac{7}{9 - \frac{4}{5 - \frac{3}{x-1}}} = 1$$

O halde  $x - 1 = 1$  olur.

$$x = 2$$

**Cevap: A**

$$65. \begin{array}{r} 2x - z = 6 \\ y + 3z = 5 \\ \hline 2x - 2z = 12 \\ + \quad y + 3z = 5 \\ \hline 2x + y + z = 17 \\ \underline{14} \end{array}$$

$$z = 3 \text{ olur.}$$

- $x - 3 = 6 \Rightarrow x = 9$
- $y + 9 = 5 \Rightarrow y = -4$

O halde

$$x + y + z = 9 - 4 + 3 = 8 \text{ bulunur.}$$

**Cevap: C**

$$66. A = \{x / \frac{x}{2} = k, \quad x < 800 \text{ ve } k \in \mathbb{Z}^+\}$$

A kümesinin elemanları  $2k$  olduğundan

$$A = \{2, 4, 6 \dots 798\}$$

$$n(A) = \frac{798 - 2}{2} + 1 = 399$$

$$B = \{x / \frac{x}{3} = k, \quad x < 550 \text{ ve } k \in \mathbb{Z}^+\}$$

B kümesinin elemanları  $3k$  olduğundan

$$B = \{3, 6, 9, \dots 549\}$$

$$n(B) = \frac{549 - 3}{3} + 1 = 183$$

$A \cap B$  kümesi 2 ve 3'ün katı olacağından 6'nın katıdır.

$$A \cap B = \{6, 12, 18, \dots 546\}$$

$$n(A \cap B) = \frac{546 - 6}{6} + 1 = 91$$

O halde

$$n(A \cup B) = n(A) + n(B) - n(A \cap B)$$

$$= 399 + 183 - 91$$

$$= 491 \text{ bulunur.}$$

**Cevap: D**

$$67. f(x - 1) = 2x - 4 \text{ fonksiyonunda } x \text{ yerine } (x + 1) \text{ yazılırsa}$$

$$f(x) = 2(x + 1) - 4 = 2x - 2$$

$$g(x + 1) = x - 3 \text{ fonksiyonunda } x \text{ yerine } (x - 1) \text{ yazılırsa}$$

$$g(x) = x - 1 - 3 = x - 4 \text{ olur.}$$

$$(f \circ g)(2) = f(g(2)) = ?$$

$$g(2) = 2 - 4 = -2$$

$$f(-2) = 2 \cdot (-2) - 4 = -4 - 4 = -8 \text{ bulunur.}$$

**Cevap: C**

$$68. f\left(\frac{x-2}{3}\right) = 2x + 1$$

fonksiyonunda  $f(a)$ 'yı bulmak için

$$\frac{x-2}{3} = a$$

$$3a = x - 2$$

$$3a + 2 = x \text{ yazılırsa } f(a) \text{ fonksiyonu oluşur.}$$

$$f(a) = 2 \cdot (3a + 2) + 1 = 6a + 5$$

$$f(a) = a \text{ olacak şekilde}$$

$$6a + 5 = a$$

$$5a = -5$$

$$a = -1 \text{ bulunur.}$$

**Cevap: B**

$$69. \bullet P(x) = (x + 6) \cdot Q(x) \text{ ifadesinde } x = 0 \text{ yazalım.}$$

$$P(0) = 6 \cdot Q(0)$$

$$P(0) = 6 \cdot 5 = 30$$

$$\bullet P(x) = (x + 6) \cdot Q(x) \text{ ifadesinde } x = 1 \text{ yazalım.}$$

$$P(1) = 7 \cdot Q(1)$$

$$14 = 7 \cdot Q(1) \quad Q(1) = 2$$

O halde

$$P(0) + Q(1) = 30 + 2 = 32 \text{ bulunur.}$$

**Cevap: E**



70.  $P(x) = x^3 + 4x^2 + ax + b$

$$\begin{array}{r} P(x) \mid (x-1)^2 \\ - \phantom{P(x)} \mid B(x) \\ \hline 0 \end{array}$$

$$P(x) = \underbrace{(x-1)^2 \cdot B(x)} + 0$$

$$\begin{array}{l} x-1=0 \\ x=1 \end{array}$$

$$P(1) = 0$$

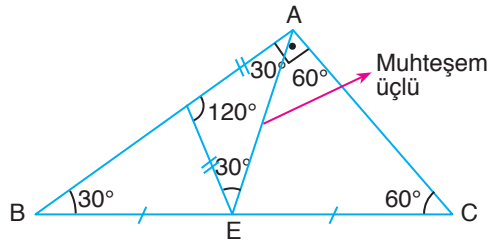
$$P(x) = x^3 + 4x^2 + ax + b$$

$$P(1) = 1 + 4 + a + b = 0$$

$$a + b = -5 \text{ bulunur.}$$

**Cevap: A**

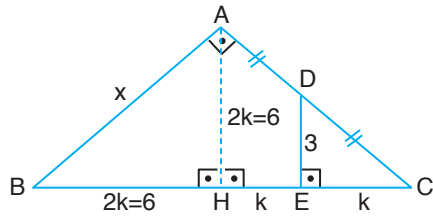
71.



$$m(\widehat{ADE}) = 120^\circ \text{ bulunur.}$$

**Cevap: E**

72.



$$4|EC| = |BC|$$

$$|EC| = k \text{ dersek } |BC| = 4k \text{ olur.}$$

$$[AH] \text{ dikmesini indirirsek } |HE| = |EC| = k \text{ olur.}$$

$$\text{Dolayısıyla } |BH| = 2k$$

$(\widehat{AHC}) \widehat{ABC}$ 'de  $m(\widehat{A}) = 90^\circ$  ve  $|BH| = |HC|$  olduğundan

$$|AH| = 2k \text{ (Muhteşem Üçlünden)}$$

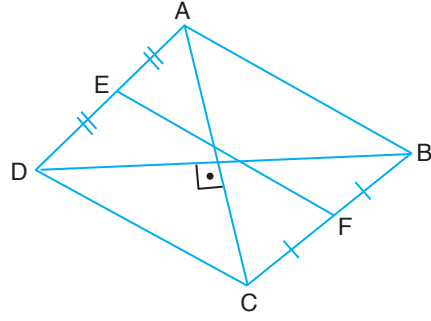
$$|AH| = 2|DE| \Rightarrow |AH| = 6 \text{ br}$$

ABH üçgeni ikizkenar dik üçgendir.

$$|AB| = x = 6\sqrt{2} \text{ bulunur.}$$

**Cevap: C**

73.



ABC üçgeninde [EK] ABC üçgeninde [KF] orta tabanıdır.  $[EK] \perp [KF]$

$$|EK| = \frac{|DB|}{2} = \frac{16}{2} = 8 \text{ br}$$

$$|KF| = \frac{|AC|}{2} = \frac{8}{2} = 4 \text{ br}$$

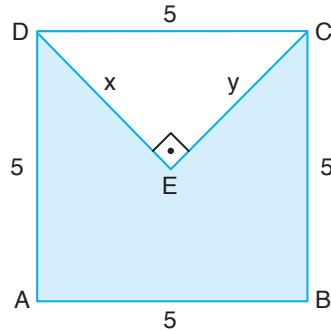
EKF dik üçgeninde pisagor uygulanırsa

$$8^2 + 4^2 = |EF|^2 \Rightarrow |EF| = 4\sqrt{5} \text{ br}$$

**Cevap: D**

TASARI EĞİTİM YAYINLARI

74.



$A(ABCD) = 25 \text{ br}^2$  kare olduğundan her bir kenar uzunluğu 5 br olur.

$$|AB| = |BC| = |DC| = |DA| = 5 \text{ br}$$

$$|DE| = x \text{ ve } |CE| = y \text{ olsun. } \widehat{DEC} = 120 \text{ br}$$

$$\bullet \quad x + y + 5 = 12 \Rightarrow x + y = 7$$

$$\bullet \quad x^2 + y^2 = 25$$

$$(x + y)^2 = x^2 + y^2 + 2x \cdot y$$

$$49 = 25 + 2x \cdot y \Rightarrow x \cdot y = 12$$

$$A(\widehat{DEC}) = \frac{x \cdot y}{2} = \frac{12}{2} = 6$$

$$\text{O halde taralı alan} = 25 - 6 = 19 \text{ br}^2$$

**Cevap: E**

