

$$1. \quad 3 - \frac{\left(\frac{1}{3} - 1\right) : \frac{1}{3}}{\left(\frac{1}{4} - 1\right) : \frac{3}{8}} = 3 - \frac{\left(-\frac{2}{3}\right) \cdot \frac{3}{1}}{\left(-\frac{3}{4}\right) \cdot \frac{8}{3}}$$

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

$$= 3 - 1$$

$$= 2 \text{ bulunur.}$$

$$2. \quad \begin{array}{l} 2^x = 3^4 \\ x \quad 3^y = 2^5 \end{array}$$


---


$$2^x \cdot 3^y = 3^4 \cdot 2^5$$

$$x = 5, y = 4$$

$$x \cdot y = 5 \cdot 4 = 20$$

\* Kural!

$$2^x = 3^y$$

$$2^a = 3^b \text{ olsun.}$$

$$x \cdot b = a \cdot y \text{ dir.}$$

$$3. \quad \frac{2}{\sqrt{3}} - \frac{1}{2\sqrt{3}} - \sqrt{3} = ? = \textcircled{A}$$

Her taraf  $\sqrt{3}$  ile çarpılsın.

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

$$\frac{3}{2} = A\sqrt{3}$$

$$\frac{\sqrt{3}}{2} = A\sqrt{3}$$

$$\frac{\sqrt{3}}{2} = A\sqrt{3}$$

Cevap: B

Cevap: D

Cevap: C

$$4. \quad \frac{0,04 - 0,20}{0,20 - 0,01}$$

$$= \frac{-0,16}{0,19} = -\frac{16}{19}$$

Cevap: A

$$5. \quad 120 \cdot y = x^2$$

$$2 \cdot 2 \cdot 2 \cdot 3 \cdot 5 \cdot y = x^2$$

$$y = 2 \cdot 3 = 30$$

$$x = 2 \cdot 2 \cdot 3 \cdot 5 = 60$$

$$x + y = 30 + 60 = 90$$

Cevap: D

$$6. \quad 2^x + 2^x \cdot 2 \cdot 2^x \cdot 4 = 112$$

$$2^x(1 + 2 + 4) = 112$$

$$2^x \cdot 7 = 112$$

$$2^x = 16$$

$$2^x = 2^4$$

$$x = 4$$

Cevap: D

$$7. \quad A = 4a + 1 = 5b + 2 = 6c + 9$$

Her tarafa +3 eklenirse;

$$A + 3 = 4a + 4 = 5b + 5 = 6c + 12$$

$$A + 3 = 4(a + 1) = 5(b + 1) = 6(c + 2)$$

$$[4, 5, 6] = 60 \text{ (ekok)}$$

$$A + 3 = 60$$

$$A = 57$$

Cevap: C

$$\begin{aligned}
 8. \quad & x.y = 3 \\
 & y.z = 4 \\
 & \underbrace{x.z.y^2}_{2} = 12 \\
 & y^2 = 6 \\
 & y = \sqrt{6}
 \end{aligned}$$

Cevap: D

$$\begin{aligned}
 9. \quad & a = b + c \\
 & b^3 = b + 3b \\
 & b^2 = 4 \\
 & b = \pm 2 \Rightarrow \begin{matrix} \nearrow 2^+ \\ +2 \end{matrix} \\
 & a + b + c = 2^3 + 2 + 6 \\
 & = 8 + 8 = 16
 \end{aligned}$$

Cevap: A

$$\begin{aligned}
 10. \quad & x = 3k, y = 5k \\
 & 3x + 4y = 116 \\
 & 3.3k + 4.5k = 116 \\
 & 9k + 20k = 116 \\
 & 29k = 116 \\
 & k = 4 \\
 & y - x = 5k - 3k = 2k = 8
 \end{aligned}$$

Cevap: B

$$\begin{aligned}
 11. \quad & 3a + 5b + 2c = 79 \\
 & c = 1 \text{ olsun.} \\
 & 3a + 5b + 2 = 79 \\
 & \begin{matrix} 3a + 5b = 77 \\ \downarrow \quad \downarrow \\ 9 \quad 10 \end{matrix} \\
 & d = 9, b = 10 \text{ sağlar.} \\
 & \text{O halde } c = 1 \text{ imiş.}
 \end{aligned}$$

Cevap: A

$$\begin{aligned}
 12. \quad & \frac{\sqrt{3,24} + \sqrt{1,21}}{\sqrt{0,64} - \sqrt{0,49}} = \frac{\sqrt{\frac{324}{100}} + \sqrt{\frac{121}{100}}}{\sqrt{\frac{64}{100}} - \sqrt{\frac{49}{100}}} \\
 & = \frac{\frac{18}{10} + \frac{11}{10}}{\frac{8}{10} - \frac{7}{10}} = \frac{\frac{29}{10}}{\frac{1}{10}} \\
 & = 29 \text{ bulunur.}
 \end{aligned}$$

Cevap: A

$$\begin{aligned}
 13. \quad & \frac{(x-1)(x-2)}{x^2 + mx + n} = \frac{x-1}{x+3} \\
 & (x-2)(x+3) = x^2 + mx + n \\
 & m = -2 + 3 = 1 \\
 & n = (-2)(3) = -6 \\
 & m + n = 1 - 6 = -5
 \end{aligned}$$

Cevap: E

$$\begin{aligned}
 14. \quad & (x+1)^2 - x = 0 \\
 & (x+1)^{2.2016} = x^{2016} \\
 & (-x^2)^{2.2016} = x^{2016} \\
 & x^{4.2016} = x^{2016} \\
 & x^{\frac{3.2016}{3}} = 1^{\frac{1}{3}} \\
 & x^{2016} = 1
 \end{aligned}$$

Cevap: B

$$\begin{aligned}
 15. \quad & \frac{n(n-1)(n-2)! + (n-1).(n-2)!}{(n-1)(n-2)! + (n-2)!} \\
 & = \frac{(n-2)!(n.(n-1) + (n-1))}{(n-2)!(n-1+1)} \\
 & = \frac{n^2 - n + n - 1}{n} = \frac{n^2 - 1}{n} = n - \frac{1}{n}
 \end{aligned}$$

Cevap: D

$$16. (a - b)^2 + 4ab = a^2 + b^2 - 2ab + 4ab$$

$$= a^2 + b^2 + 2ab = (a + b)^2$$

$$(a + b)^2 = (8,324 + 1,676)^2 = (10,000)^2 = (10)^2 = 100$$

Cevap: A

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

$$\frac{4+x-4}{x} + \frac{x}{x+2} = \frac{4}{3}$$

$$1 + \frac{x}{x+2} = \frac{4}{3}$$

$$\frac{x}{x+2} = \frac{4}{3} - 1$$

$$\frac{x}{x+2} = \frac{1}{3}$$

$$3x = x + 2$$

$$2x = 2$$

$$x = 1$$

$$18. i) \sqrt{4a + b} = 34 - 16a$$

$$ii) 4b - 30 = \sqrt{4a + b}$$

$$34 - 16a = 4b - 30$$

$$64 = 16a + 4b$$

$$64 = 4(4a + b)$$

$$4a + b = 16$$

$$i\text{'den } \sqrt{16} = 34 - 16a$$

$$4 = 34 - 16a$$

$$16a = 30 \Rightarrow a = \frac{15}{8}$$

$$ii\text{'den } 4b - 30 = \sqrt{16}$$

$$4b = 4 + 30 = 34$$

$$b = \frac{17}{2}$$

$$a + b = \frac{15}{8} + \frac{17}{2}$$

$$= \frac{15 + 68}{8}$$

$$= \frac{83}{8} \text{ bulunur.}$$

Cevap: B

$$19. x + y + z = 6$$

$$xy + xz = 9$$

$$x(y + z) = 9$$

$$y + z = \frac{9}{x} \text{ ise}$$

$$x + \frac{9}{x} = 6$$

$$x^2 + 9 = 6x$$

$$x^2 - 6x + 9 = 0$$

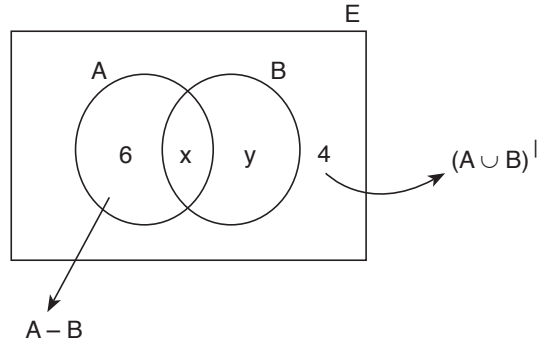
$$(x - 3)^2 = 0$$

$$x - 3 = 0$$

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

Cevap: C

20.



Cevap: C

$$A \cap B = (A \cup B) \text{ demektir.}$$

$$s(E) = 6 + x + y + 4 = 15$$

$$x + y = 15 - 10 = 5$$

$$s(B) = x + y = 5$$

Cevap: C

$$21. f(x) = 3^{x+1} - 1 = 3^x \cdot 3 - 1$$

$$f(x) = 3^{2x} \cdot 3 - 1 = (3^x)^2 \cdot 3 - 1$$

$$f(x) = 3^x \cdot 3 - 1$$

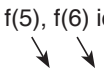
$$\frac{f(x) + 1}{3} = 3^x \rightarrow \left( \frac{f(x) + 1}{3} \right)^2 \cdot 3 - 1$$

$$= \frac{f^2(x) + 1 + 2f(x)}{3} \cdot 3 - 1$$

$$= \frac{f^2(x) + 2f(x) + 1 - 3}{3}$$

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

Cevap: D

22.  $f(x-1)$   
 $f(5), f(6)$  için  
  
 $x$ 'e 5 ve 6 verilmeli  
5 için,  $\frac{x+1}{2}$ ; 6 için  
 $x^2 - 1$  kullanılmalı.  
 $f(5) = \frac{5+1}{2} = \frac{6}{2} = 3$   
 $f(6) = 6^2 - 1 = 36 - 1 = 35$   
 $f(5) + f(6) = 35 + 3 = 38$

Cevap: C

23.  $(x-2).P(x) = x^2 - x + a$   
 $x = 2$   
 $0.P(2) = 4 - 2 + a$   
 $2 + a = 0$

$$\boxed{a = -2}$$

$$P(x) = \frac{x^2 - x - 2}{x - 2} = \frac{(x-2)(x+1)}{x-2}$$

$$P(x) = x + 1$$

$$(x-6).B(x) + C(x) = P(x)$$

$$(x-6).B(x) + C(x) = x + 1$$

$$\boxed{x = 7}$$

$$(7-6).B(x) + C(x) = 7 + 1$$

$$B(x) + C(x) = 8$$

Cevap: E

24.  $A = \{3, 6, \dots, 60\}$   
 $B = \{4, 8, \dots, 60\}$   
 $A \cap B = \{12, 24, \dots, 60\}$   
 $\frac{60+2}{12} + 1 = \frac{48}{12} + 1 = 4 + 1 = 5$

Cevap: B

25.  $x_1 \cdot x_2 = 3$   
 $x_1 + x_2 = 1$   
 $(x_1 + x_2)^2 = x_1^2 + x_2^2 + \frac{2x_1x_2}{3} = 1$   
 $x_1^2 + x_2^2 + 6 = 1$   
 $x_1^2 + x_2^2 = -5$   
 $\frac{1}{x_1^2} + \frac{1}{x_2^2} = \frac{x_2^2 + x_1^2}{(x_1x_2)^2} = -\frac{5}{3^2} = -\frac{5}{9}$

Cevap: A

26.  $3^1 = 3$   
 $3^2 = 4 = \textcircled{-1}$   
 $3^{4k+21} = 3^{21} - 3^1 = \textcircled{3}$

Cevap: D

27.  $x < 0$   
 $|x| - |-2x| + |-3x|$   
 $= -x - (-2x) + (-3x)$   
 $= -x + 2x - 3x = -2x$

Cevap: C

28.  $x + \frac{42}{y} = 12 \Rightarrow x.y + 42 = 12y$   
 $y + \frac{42}{x} = 9 \Rightarrow x.y + 42 = 9x$   
 $9x = 12y$   
 $\frac{x}{y} = \frac{12}{9} = \frac{4}{3}$  bulunur.

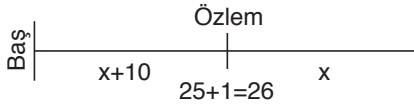
Cevap: E

29. 
$$\begin{array}{r} ABA \\ + AAB \\ \hline 92C \end{array}$$
  $A = 4$   

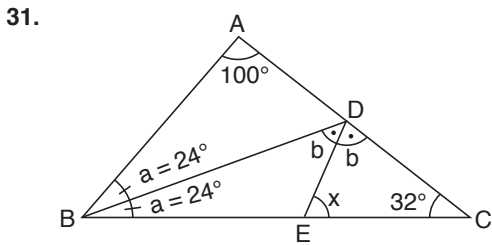
$$\begin{array}{r} 474 \\ + 447 \\ \hline 921 \end{array}$$
  $B = 7$   
 $A + B - C = 4 + 7 - 1 = 10$   $C = 1$

Cevap: B

30.  $2x + 10 + 1 = 41$   
 $2x = 30$   
 $x = 15$

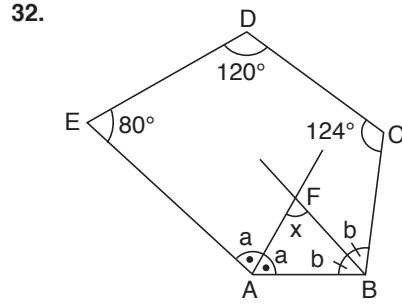


Cevap: C



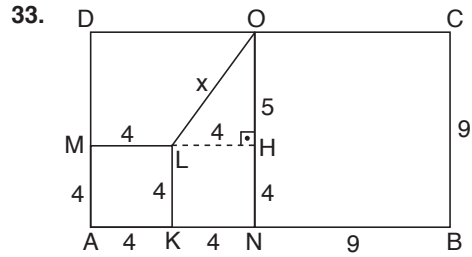
ABC üçgeninde BD açıortay olduğundan  
 $m(\widehat{ABD}) = m(\widehat{DBC}) = a$  olsun.  
 $100 + a + a + 32 = 180$   
 $2a = 48 \Rightarrow a = 24^\circ$   
 $m(\widehat{BDE}) = m(\widehat{CDE}) = b$  diyelim  
 $24 + b + b + 23 = 180$   
 $2b = 124 \Rightarrow b = 62$   
 O halde EDC üçgeninde  
 $x + 62 + 32 = 180 \Rightarrow x = 86$  bulunur.

Cevap: E



$(n - 2) \cdot 180^\circ$   
 $(5 - 2) \cdot 180 = 3 \cdot 180 = 540^\circ$  beşgenin iç açılarının toplamı  
 O halde  
 $a + a + b + b + 80 + 120 + 124 = 540$   
 $2(a + b) = 216 \Rightarrow a + b = 108$   
 AFB üçgeninden;  
 $x + a + b = 180 \Rightarrow x + 108 = 180 \Rightarrow x = 72$

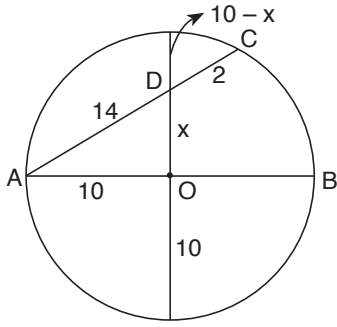
Cevap: A



$x^2 = 4^2 + 5^2$   
 $x^2 = 16 + 25 = 41$   
 $x = \sqrt{41}$

Cevap: B

34.



D noktası kısırların kesim noktası olduğundan

$$(10 - x) \cdot (10 + x) = 14 \cdot 2$$

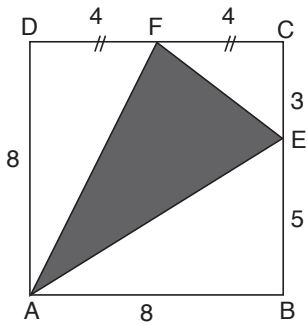
$$10^2 - x^2 = 28$$

$$100 - 28 = x^2 \Rightarrow x^2 = 72$$

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

**Cevap: C**

35.



Taralı Alanı bulmak için diğer üçgenlerin alanlarını kareden çıkaralım.

$$T.A = 8 \cdot 8 - \frac{8 \cdot 5}{2} - \frac{4 \cdot 3}{2} - \frac{8 \cdot 4}{2}$$

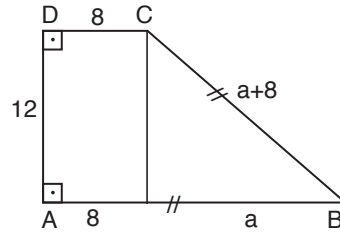
$$= 64 - 20 - 6 - 16$$

$$= 22 \text{ br}^2 \text{ bulunur.}$$

**Cevap: B**

36.  $12^2 + a^2 = (a + 8)^2$

$$a = 5$$



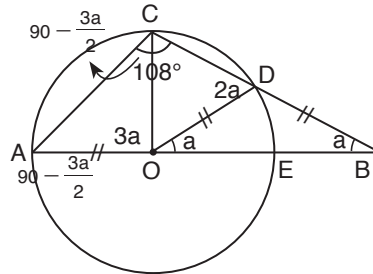
$$\text{Çevre} = 12 + 8 + a + a + 8 + 8$$

$$= 36 + 2a$$

$$= 46$$

**Cevap: A**

37.



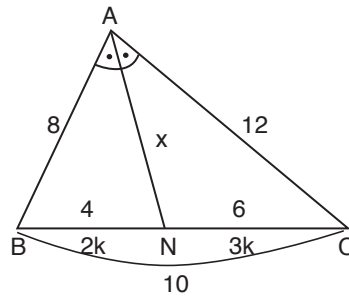
$$90 - \frac{3a}{2} + 2a = 108$$

$$18 = \frac{9}{2}$$

$$a = 36$$

**Cevap: C**

38.



$$2k + 3k = 10$$

$$5k = 10$$

$$k = 2$$

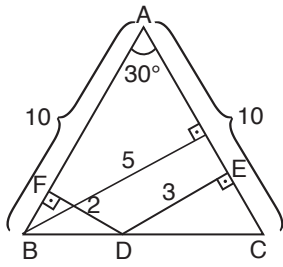
$$8 \cdot 12 - 4 \cdot 6 = x^2$$

$$96 - 24 = 72$$

$$= 6\sqrt{2} = x$$

**Cevap: B**

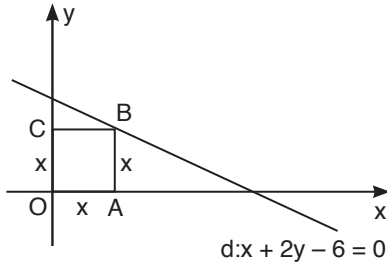
39.



$$\frac{10 \cdot 5}{2} = 5 \cdot 5 = 25$$

Cevap: E

40.



$$\begin{aligned} x + 2 \cdot x - 6 &= 0 \\ 3x - 6 &= 0 \\ 3x &= 6 \\ x &= 2 \end{aligned}$$

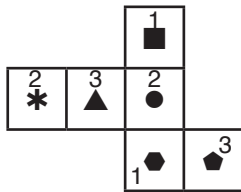
$$\begin{aligned} \text{Alan}(OABC) &= 2 \cdot 2 \\ &= 4 \end{aligned}$$

Cevap: A

41.  $4 \times 3 = 12$   
 $5 \times 3 = 15$   
 $7 \times 3 = 21$   
 $9 \times 3 = 27$   
 $11 \times 3 = 33$

Cevap: B

42.



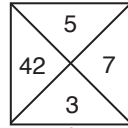
Cevap: A

43.  $36 = 12 + 12 + 6 + 6$

(ön) (karşı) (orta)

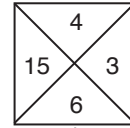
Cevap: B

44.



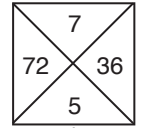
$$(42 \div 7) + (5 \cdot 3)$$

$$\begin{aligned} 6 + 15 \\ = 21 \end{aligned}$$



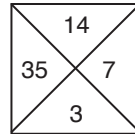
$$(15 \div 7) + (4 \cdot 6)$$

$$\begin{aligned} 5 + 24 \\ = 29 \end{aligned}$$



$$(72 \div 36) + (7 \cdot 5)$$

$$\begin{aligned} 2 + 35 \\ = 37 \end{aligned}$$



$$\rightarrow (35 \div 7) + (14 \cdot 3)$$

$$\begin{aligned} = 5 + 42 \\ = 47 \text{ bulunur.} \end{aligned}$$

Cevap: D

TASARI AKADEMİ YAYINLARI

45.  $5 \cdot 2 + \frac{9}{3} - (4)^2 = 10 + 3 - 16$

$$= 13 - 16$$

$$= -3$$

Cevap: B

Cevap: B

46.  $7 \cdot 4 + \frac{x}{3} - (2)^2 = 28 + \frac{x}{3} - 4 = 26$

$$24 + \frac{x}{3} = 26 = 26$$

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

$$x = 6$$

Cevap: D

47.  $a + c = 16$

$\Rightarrow 2b = b^2$

$2 = b$

$a \cdot b = 14$

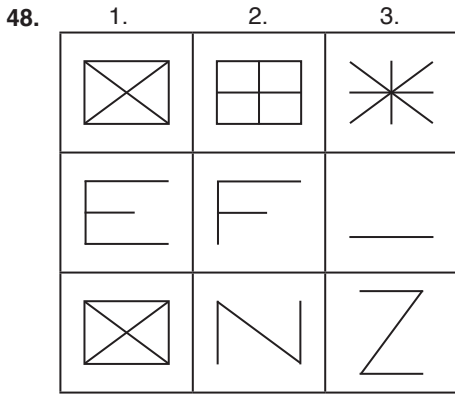
$a \cdot 2 = 14$

$a = 7$

$a + c = 16 \Rightarrow 7 + c = 16$

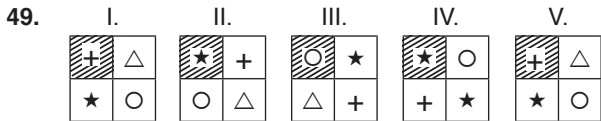
$c = 9$

Cevap: B

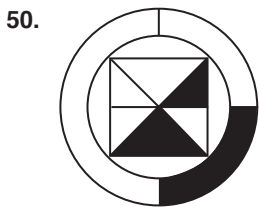


1 ile 2 üst üste getirilmiş. Ve ortak olmayan yer(ler) 3.'ye yazılmış.

Cevap: C



Cevap: D



Cevap: C

51.  $x^2 + 3$

1, 5, 13, 29, 61, x

$61 \cdot 2 + 3 = 122 + 3 = 125$

Cevap: D

52.

I

$$\begin{array}{r} 8 \times 4 = 32 \\ + 9 \times 6 = 54 \\ \hline 86 \end{array} \begin{array}{l} 2 \\ | \\ (43) \end{array}$$

II

$$\begin{array}{r} 3 \times 7 = 21 \\ + 5 \times 9 = 45 \\ \hline 66 \end{array} \begin{array}{l} 2 \\ | \\ (33) \end{array}$$

III

$$\begin{array}{r} 11 \times 5 = 55 \\ + 13 \times 7 = 91 \\ \hline 146 \end{array} \begin{array}{l} 2 \\ | \\ (73) \text{ bulunur} \end{array}$$

Cevap: C

53.  $325 \rightarrow 6.7 (3.2) \cdot (1+5)$

$417 \rightarrow 4.8$

$523 \rightarrow 10.5$

$(1.2) \cdot (2 + 4) = 2,6$

Cevap: B

54.

I	II	
İNEK	3412	E = 3
KENE	1234	K = 4
ENİK	3214	İ = -1
EKİN	4323	N = 2
NİNE	2123	

Cevap: C

55.  $a^2 \Delta \sqrt{b} = a + b$

$\downarrow \quad \downarrow \quad \downarrow$   
 $a=3 \quad b=16 = 3^2 \Delta \sqrt{16} = 9 \Delta 4 = 3 + 16 = 19$

Cevap:



56.  $x * x = 3x - 5.x + 9 = x$

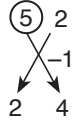
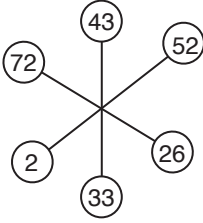
$$9 - 2x = x$$

$$9 = 3x$$

$$x = 3$$

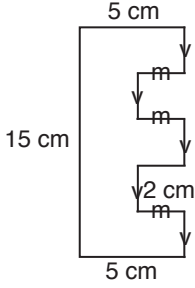
Cevap: C

57.



Cevap: C

58.



$$5.V = 15$$

$$4.m = 4.2 = 8$$

$$15 + 5 + 15 + 8 + 5 = 48$$

Cevap: A

59.  $\left(\frac{1}{2} + 3^2\right).3$

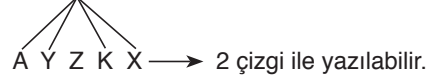
$$= \left(\frac{1}{2} + 9\right).3 = \frac{3}{2} + 27$$

$$= \frac{3 + 54}{2}$$

$$= \frac{57}{2}$$

Cevap: E

60. 3 çizgi ile yazılabilir.



Cevap: E

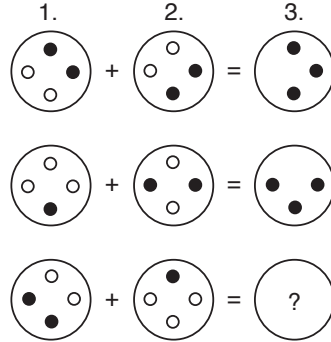
61.  $6.7 + 10.2 = 62$

$$11.12 + 3.6 = 150$$

$$17.5 + 2.10 = 105$$

Cevap: E

62.



1. ve 2.'yi topla. Siyah olanları 3'e yaz.

Cevap: E

63.  $a.b = c$

$$a.c = b^2$$

$$c^2 = 27$$

$$\frac{b}{c} \neq \frac{c}{b^2}$$

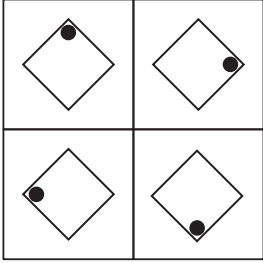
$$b^3 = c^2 = 27 = 3^3$$

$$\boxed{b = 3}$$

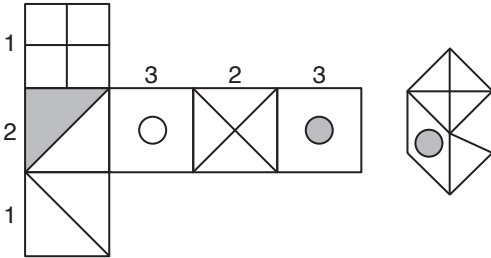
Cevap: A

64.  $\rightarrow$  birim  
 1  $\rightarrow$  9 adet  
 4  $\rightarrow$  3 adet  
 + 9  $\rightarrow$  1 adet  
 13 adet

Cevap: C

65.  90° saat yönünde dönme

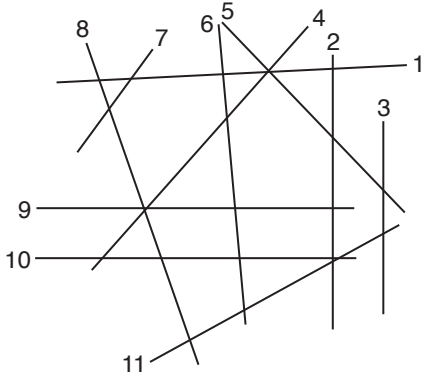
Cevap: C

66. 

Cevap: E

67. Daire dörtgenin içinde. D şıkında ise üçgenin içinde.

Cevap: D

68. 

Cevap: B

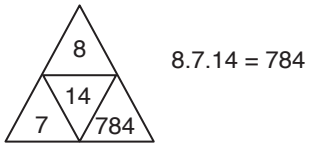
TASARI AKADEMİ YAYINLARI

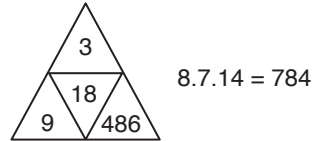
69. 

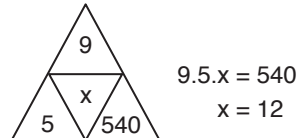
7	8	4	19	1
3	14	5	22	2
2	7	x	27	3
12	29	27	68	4

$$\begin{array}{r} 1 \\ 2 \\ + 3 \\ \hline 4 \end{array}$$

Cevap: A

70. 

- 

- 

Cevap: D

71.

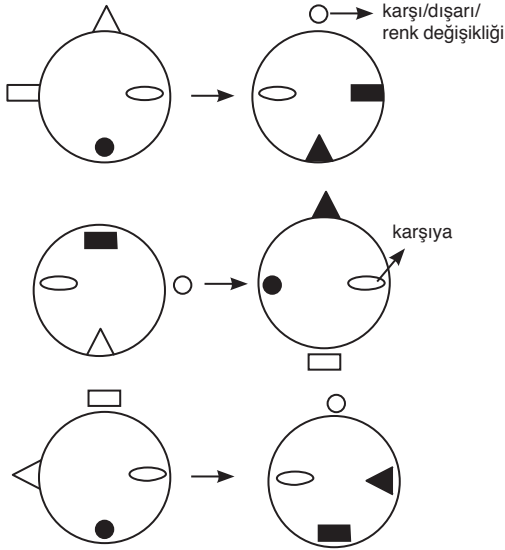
$$\frac{4}{8 \cdot 6 \cdot 9} = 36$$

$$\frac{4}{16 \cdot 3 \cdot 5} = 20$$

$$\frac{9}{27 \cdot 7 \cdot 4} = 63$$

Cevap: D

72.



Cevap: C

73.  $2k + \ddot{u} = 2 \cdot 3a + 5a = 6a + 5a = 11a$

$4\check{\text{c}} + k$

$4 \cdot 2a + 3a = 8a + 3a = 11a$

I.  $\ddot{u} + 3\check{\text{c}} = 3k + z$

$2 \cdot 2k + 3\check{\text{c}} = k + \ddot{u} + 2\check{\text{c}}$

$\boxed{\ddot{u} + 2\check{\text{c}} = 3k}$

$\boxed{k + \check{\text{c}} = \ddot{u}}$

$k + \check{\text{c}} + 2a = 3k$

$3a + 2a = \ddot{u}$

$k + 3\check{\text{c}} = 3k$

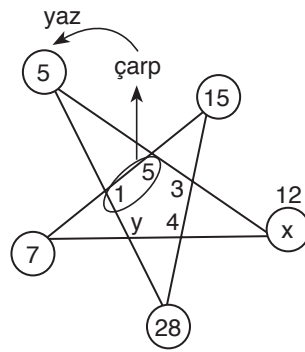
$5a = \ddot{u}$

$3a = 2k$

$2a \quad 3a$

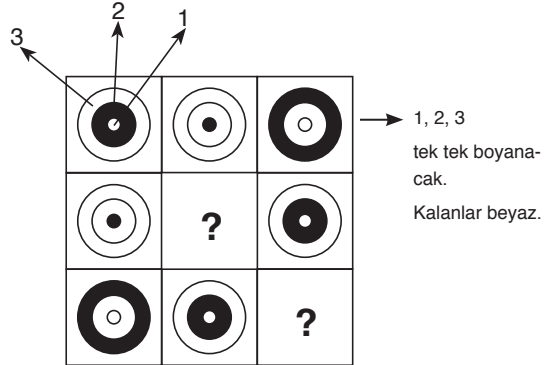
Cevap: B

74.



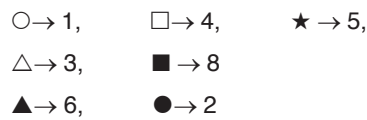
Cevap: E

75.



Cevap: B

76.



Cevap: E

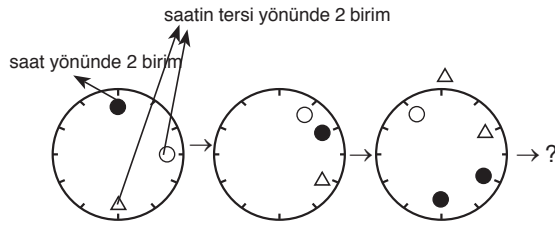
77.  $32 + 23 + x + 14 + 21 = \%100$

$x = \%10$

%100	360
%10	?
? = 36° olur.	

Cevap: D

78.



Cevap: A

79. 1. siyah altıgen çevresinde 6 beyaz altıgen bulunmakta, 2. siyah altıgen çevresinde 2.'sini saydık 4 tane var, diğer siyah altıgenlerin hepsinde 4 tane beyaz var.

O halde

$$6 + \underbrace{4 + 4 + 4 + \dots + 4}_{23 \text{ tane}}$$

$$= 6 + 4.23$$

$$= 6 + 92$$

$$= 98 \text{ tane beyaz altıgen var.}$$

Cevap: D

80.  $\frac{|11.d - 60s|}{2} = x$

$$\frac{|11.40 - 60.15|}{2} = x$$

$$\frac{10|44 - 90|}{2} = 5, 4b = \alpha$$

$$230 = \alpha$$

dar açı

$$360 - 230 = 130$$

Cevap: C