

$$1. \frac{\frac{0,0020}{0,0002} + \frac{0,003}{0,300}}{\frac{3}{100} - \frac{0,0002}{0,0100}} = \frac{\frac{20}{2} + \frac{3}{300}}{\frac{3}{100} - \frac{2}{100}}$$

$$\frac{10 + \frac{1}{100}}{\frac{1}{100}} = \frac{\frac{1001}{100}}{\frac{1}{100}} = 1001$$

Cevap: C

$$2. \frac{8 \cdot 10^{-6} + 12 \cdot 10^{-4}}{201 \cdot 10^{-6} + 403 \cdot 10^{-6}} = \frac{8 \cdot 10^{-6} + 1200 \cdot 10^{-6}}{201 \cdot 10^{-6} + 403 \cdot 10^{-6}}$$

$$\frac{1208 \cdot 10^{-6}}{604 \cdot 10^{-6}} = 2$$

Cevap: D

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

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

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

Cevap: B

$$4. \frac{3a}{3x} = \frac{-b}{-y} = \frac{3c}{3z} = 3$$

$$\frac{3a-b+3c}{3x-y+3z} = 3$$

$$\frac{81}{3(x+z)-y} = 3 \rightarrow \frac{81}{6-y} = 3$$

$$81 = 18 - 3y$$

$$3y = -63$$

$$y = -21$$

Cevap: E

$$5. \cdot 15^a = 3 \Rightarrow 15^{ab} = 3^b$$

$$\cdot 15^{(1-a)3b} = 15^{3b-3ab} = 15^{3b} \cdot \frac{1}{(15^{ab})^3}$$

$$= 15^{3b} \cdot \frac{1}{3^{3b}} = 5^{3b}$$

$$= (5^b)^3$$

$$= 2^3 = 8$$

Cevap: C

$$6. \frac{(3^x)^3 + (2^x)^3}{9^x - 6^x + 4^x} \cdot \frac{2^x - 3^x}{2^x + 3^x} = \frac{(3^x + 2^x)(9^x - 6^x + 4^x)}{9^x - 6^x + 4^x}$$

$$= 2^x - 3^x$$

Cevap: C

$$7. \left(17 - \frac{3}{16}\right)\left(17 - \frac{4}{16}\right) \dots \left(17 - \frac{272}{16}\right) \dots \left(17 - \frac{279}{16}\right)$$

$$\left(17 - \frac{3}{16}\right)\left(17 - \frac{4}{16}\right) \dots (17 - 17) \dots \left(17 - \frac{279}{16}\right)$$

$$\downarrow$$

$$\dots 0 \dots$$

$$= 0 \text{ olur.}$$

Cevap: C

$$8. \frac{1}{x+1} \cdot \frac{x-1}{x^2-6x+9}$$

$$x^2 - 6x + 9 = x^2 - 1$$

$$-6x + 9 = -1$$

$$-6x = -10$$

$$x = \frac{5}{3}$$

Cevap: A

$$9. \frac{a+b}{2a+3b} \times \frac{2}{3} \Rightarrow 3a+3b=4a+6b$$

$$\boxed{-3b=a}$$

$$\Rightarrow \frac{b^2-ab}{2a^2-b^2} = \frac{b^2+3b^2}{2.9b^2-b^2} = \frac{4b^2}{17b^2} = \frac{4}{17}$$

Cevap: D

$$10. \frac{0,004+0,0104}{\frac{0,36}{4}+\frac{3}{100}} = \frac{0,0144}{\frac{36}{400}+\frac{3}{100}}$$

$$\frac{0,0144}{\frac{9}{100}+\frac{3}{100}} = \frac{0,0144}{\frac{12}{100}} = \frac{144}{10000} \cdot \frac{100}{12} = \frac{12}{100} = 0,12$$

Cevap: D

$$11. \begin{array}{r} x-3y+4z=-3 \\ + 2/ \quad 4x+6y-2z=6 \\ \hline \end{array}$$

$$9x+9z=9$$

$$x+z=1$$

Cevap: C

$$12. \begin{aligned} |x-y| + |y-x| + |x| + x+y \\ = -x+y+y-x-x+x+y \\ = 3y-2x \end{aligned}$$

Cevap: A

$$13. 12 + \frac{18}{5 - \frac{6}{3 \left( 1 + \frac{1}{x} \right)}} = 21$$

$$\Rightarrow \frac{6}{2 \left( 1 + \frac{1}{x} \right)} = 3 \Rightarrow \frac{1}{x} = 1 \Rightarrow x = 1$$

Cevap: C

$$14. 12^{25} \equiv x \pmod{5} \Rightarrow 2^{25} \equiv x \pmod{5}$$

$$17^{12} \equiv y \pmod{5} = 2^{12} \equiv y \pmod{5}$$

$$2^1 = 2 \quad 2^{25} \equiv 2^1 \equiv x \Rightarrow x = 2$$

$$2^2 = 4 \quad 2^{12} \equiv 2^0 \equiv y \Rightarrow y = 1$$

$$2^3 = 3 \quad x+y = 2+1 = 3$$

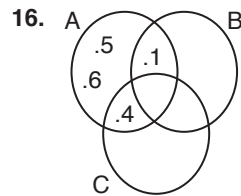
$$2^4 = 1 \quad 3 \equiv -2 \pmod{5}$$

Cevap: B

$$15. \left( \frac{125}{100} \right)^{-1} \cdot \left( \frac{2}{10} \right)^{-3} \cdot \frac{1}{5^2}$$

$$\frac{100}{125} \cdot \frac{1000}{8} \cdot \frac{1}{25} = \frac{100}{25} = 4$$

Cevap: D



$$B \cup C = \{1, 2, 3, 4, 7, 8\}$$

Cevap: D

17.  $(f \circ g)(x) = x$

$$\underbrace{f(g(x))}_{-3} = x$$

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

$$x^2 - 7x - 2 = -3x - 6$$

$$x^2 - 4x + 4 = 0$$

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

$$x = 2$$

Cevap: E

18. 
$$\frac{f(2) + f(0) + g(-1)}{f^{-1}(0) + g^{-1}(0)} = \frac{3 + 2 + 0}{-3 - 1}$$
$$= \frac{-5}{4}$$

Cevap: C

19. •  $f(3) = 3m + n = 8$

•  $f^{-1}(4) = 5 \Rightarrow f(5) = 4$

$f(5) = 5m + n = 4$

$$\Rightarrow \begin{array}{r} -/ \quad 3m + n = 8 \quad \rightarrow \quad -6 + n = 8 \\ + \quad 5m + n = 4 \quad \quad \quad n = 14 \\ \hline 2m = -4 \quad \Rightarrow \quad m = -2 \end{array}$$

$$\Rightarrow f(x) = -2x + 14$$

$$f(1) = -2 + 14 = 12$$

Cevap: B

20.  $x = 1 \Rightarrow f(1) + 3f(0) + 1 = 0$

$$x = 0 \Rightarrow \begin{array}{r} + \quad -3/ \quad f(0) + 3f(1) = 0 \\ \hline -8f(1) + 1 = 0 \\ -8f(1) = -1 \\ f(1) = \frac{1}{8} \end{array}$$

Cevap: A

21. Elma = x

Armut =  $60 - x$

$$x \cdot \frac{7}{100} + (60 - x) \cdot \frac{5}{100} = 3,5$$

$$7x + 300 - 5x = 350$$

$$2x = 50$$

$$x = 25 \Rightarrow 25 \cdot \frac{93}{100} = 23,25$$

Cevap: B

22. 
$$\frac{8!}{8! + 7! + 6!} = \frac{8!}{6!(8 \cdot 7 + 7 + 1)}$$
$$= \frac{8!}{6! \cdot 64} = \frac{8 \cdot 7}{64}$$
$$= \frac{7}{8}$$

Cevap: E

23.  $n + (n - 1) + (n - 2) + \dots + 4 + 3 + 2 + 1 = 117 + 2 + 1$

$$\frac{n \cdot (n + 1)}{2} = 120$$

$$n \cdot \frac{(n + 1)}{16} = 240 \Rightarrow n = 15$$

Cevap: C

24.  $\blacksquare \square \Delta = 7(\square \Delta)$

$$100\blacksquare + \square \Delta = 7(\square \Delta)$$

$$100\blacksquare = 6(\square \Delta)$$

$$50\blacksquare = 3(\square \Delta)$$

$$\blacksquare = 3 \quad \square \Delta = 50$$

$$\Rightarrow \blacksquare + \square + \Delta = 3 + 5 + 0 = 8 \text{ olur.}$$

Cevap: C

$$25. r = \frac{-a}{2}$$

$$\Rightarrow f\left(\frac{-a}{2}\right) = -2$$

$$\left(\frac{-a}{2}\right)^2 + a \cdot \frac{-a}{2} + 7 = -2$$

$$\frac{a^2}{4} - \frac{a^2}{2} = -9$$

$$\frac{-a^2}{4} \xrightarrow{-} -9 \Rightarrow -a^2 = -36$$

$$\boxed{a = 6}$$

Cevap: C

$$26. A = 1 + 2 + 2^2 + \dots + 2^{24}$$

$$B = 1 + 2A$$

$$= 1 + 2(1 + 2 + 2^2 + \dots + 2^{24})$$

$$= 1 + 2 + 2^2 + \dots + 2^{24} + 2^{25}$$

$$= (1 + 2 + 2^2 + \dots + 2^{24}) + 2^{25}$$

$$= A + 2^{25}$$

$$B - A = A + 2^{25} - A = 2^{25}$$

Cevap: B

$$27. \cdot q = \frac{|p|}{3} \text{ ise } |p| = 3q \text{ olduğundan}$$

$$p = 3q \text{ ve } p = -3q \text{ olur.}$$

$$\cdot p = 3q \text{ ve } q > 0 \text{ için}$$

$$2p = 7 - |q|$$

$$2 \cdot 3q = 7 - q$$

$$7q = 7 \Rightarrow q = 1 \text{ ve } p = 3 \cdot 1 = 3$$

$$\text{O halde } p + q = 3 + 1 = 4$$

$$\cdot p = -3q \text{ ve } q > 0 \text{ için}$$

$$2p = 7 - |q|$$

$$2 \cdot (-3q) = 7 + q$$

$$-7q = 7 \Rightarrow q = -1 \text{ olur ama } q > 0 \text{ olmalıydı.}$$

$$\text{O halde } p + q = 4 \text{ olur.}$$

Cevap: B

$$28. \cdot x^2y - xy^2 - x + y = 84$$

$$xy(x - y) - (x - y) = 84$$

$$(x - y)(xy - 1) = 84$$

$$(x - y)(15 - 1) = 84$$

$$(x - y) \cdot 14 = 84$$

$$x - y = 6 \text{ olur.}$$

$$\cdot (x - y)^2 = 6^2 \text{ (her iki tarafın karesi alınırsa)}$$

$$\frac{15}{x^2 - 2xy + y^2} = 36$$

$$x^2 - 30 + y^2 = 36$$

$$x^2 + y^2 = 66 \text{ olur.}$$

Cevap: C

$$29. \begin{array}{l} 2/ \quad 3\sqrt{x} + 4\sqrt{y} = 4 \\ 3/ \quad 5\sqrt{y} - 2\sqrt{x} = 5 \end{array} \rightarrow \begin{array}{l} 3\sqrt{x} + 4 = 4 \\ 3\sqrt{x} = 0 \\ x = 0 \end{array}$$

$$23\sqrt{y} = 23$$

$$\sqrt{y} = 1$$

$$y = 1$$

$$\Rightarrow x + y = 0 + 1 = 1$$

Cevap: D

$$30. \frac{2^{a-1}}{3} + \frac{2}{2^{-a}} = \frac{52}{3}$$

$$\frac{2^{a-1}}{3} + 2^{1+a} = \frac{52}{3}$$

$$\frac{2^{a-1} + 3 \cdot 2^{a+1}}{3} = 52$$

$$2^a \left( \frac{1}{2} + 3 \cdot 2 \right) = 52$$

$$2^a \frac{13}{2} = \frac{52}{1}$$

$$2^a = 8 = 2^3 \Rightarrow a = 3 \text{ olur.}$$

Cevap: A

31.  $n \cdot (n-1)(n-2)(n-3) = 3n(n-1)(n-2)$   
 $n = 6$

Cevap: B

32.  $x + \frac{12}{\sqrt{x}} = x + \frac{x + \sqrt{x}}{\sqrt{x}}$   
 $= x + \sqrt{x} + 1$   
 $= 12 + 1 = 13$

Cevap: D

33.  $+5 + 6 + 2 - 1 - 2 = +10$   
 $\Rightarrow 64 + \frac{10}{5} = 64 + 2 = 66$

Cevap: C

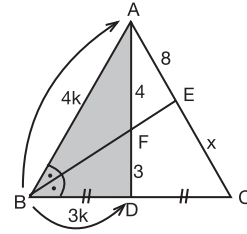
34.  $15, 13, 11, \dots, 5 \Rightarrow \frac{15-5}{2} + 1 = 6$  sıra  
 $15 + 13 + 11 + 9 + 7 + 5 = 60$   
 $\Rightarrow m + n = 60 + 6 = 66$

Cevap: A

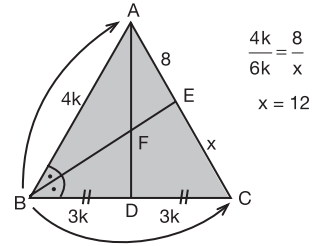
35.  $n = 14 \Rightarrow a_{14} = \frac{a_{15} + a_{13}}{2}$   
 $2a_{14} = a_{15} + a_{13}$   
 $a_{14} + a_{14} = a_{15} + a_{13} \Rightarrow a_{14} - a_{13} = a_{15} - a_{14}$   
 $\Rightarrow \frac{a_{15} - a_{14}}{a_{14} - a_{13}} = 1$

Cevap: B

36. ABD üçgeninde açıortay teoremi uygulandığında aşağıdaki gibi kenar oranları elde edilir.

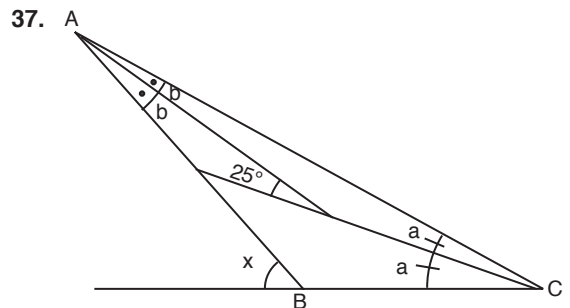


ABC üçgeninde açıortay teoremi uygulanırsa;



Cevap: A

TASARI AKADEMİ YAYINLARI

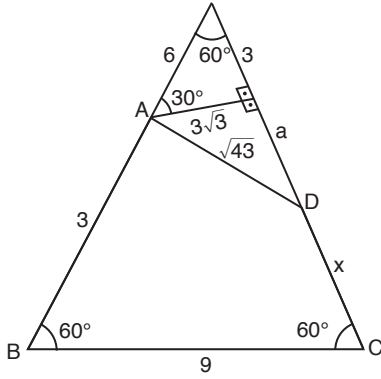


- $a + b = 25^\circ$
- $2(a + b) = x$

$\Rightarrow 2 \cdot 25^\circ = x$   
 $x = 50^\circ$

Cevap: D

38.



$$(3\sqrt{3})^2 + a^2 = (\sqrt{43})^2$$

$$27 + a^2 = 43$$

$$a^2 = 16$$

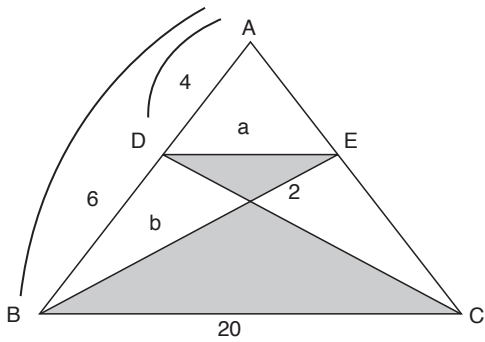
$$a = 4$$

$$\Rightarrow 3 + a + x = 9$$

$$3 + 4 + x = 9 \Rightarrow x = 2$$

Cevap: B

39.



$$\bullet \frac{4}{10} = \frac{a}{20} \Rightarrow a = 8$$

$$\bullet \frac{a}{20} = \frac{2}{b}$$

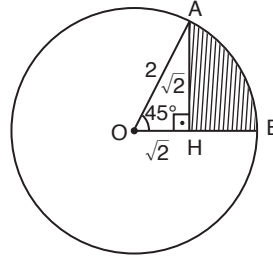
$$\frac{8}{20} = \frac{2}{b} \Rightarrow 8b = 40$$

$$b = 5$$

$$\Rightarrow a + b = 8 + 5 = 13$$

Cevap: C

40.



$$\frac{45}{360} \pi 2^2 - \frac{\sqrt{2} \sqrt{2}}{2} = \frac{\pi}{2} - 1$$

Cevap: C

TASARI AKADEMİ YAYINLARI

41. • a = 6, b = 6

$$6^2 \blacksquare \frac{2 \cdot 6}{3} = 3 \cdot 6 + 6 \Rightarrow 36 \blacksquare 4 = 24$$

• a = 12 b = 18

$$2 \cdot 12 \bullet 18 = \frac{12}{2} + \frac{18}{3} = 6 + 6 = 12$$

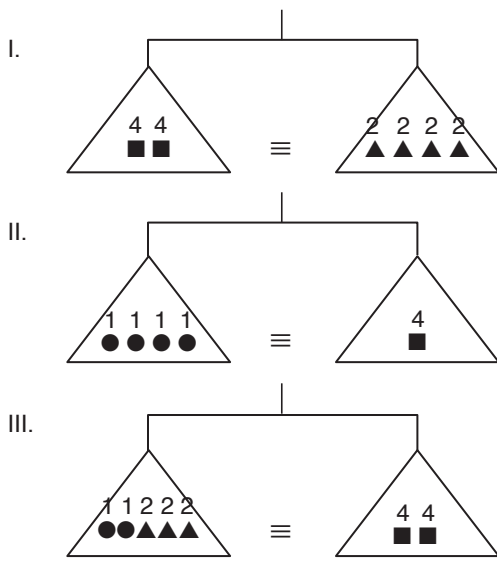
Cevap: C

42.

		b		e
c	d	e	a	b
e	a	d	b	c
		a		d
d	x	b	c	e

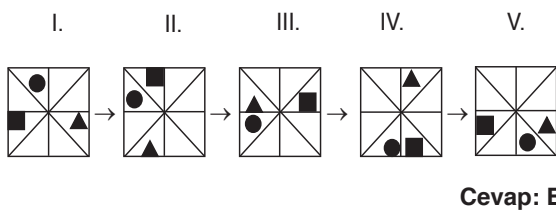
Cevap: D

43.



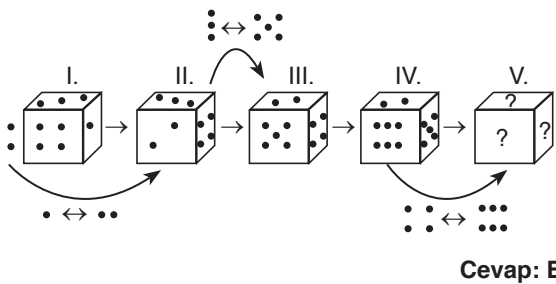
Cevap: B

44.



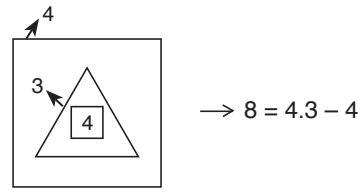
Cevap: E

45.

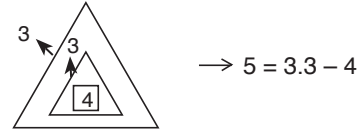


Cevap: E

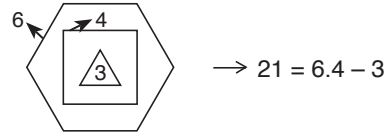
46. I.



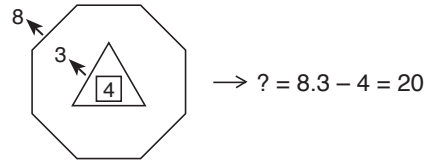
II.



III.

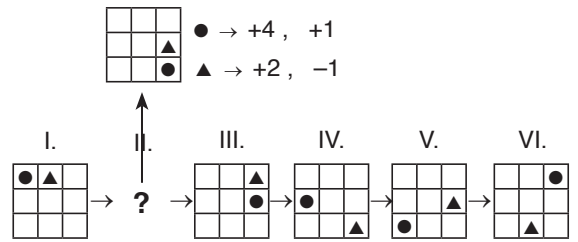


IV.



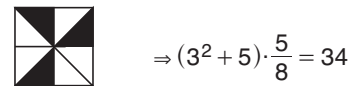
Cevap: C

47.



Cevap: D

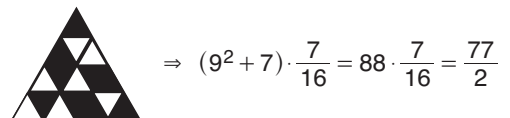
48. I.



II.



III.



Cevap: D

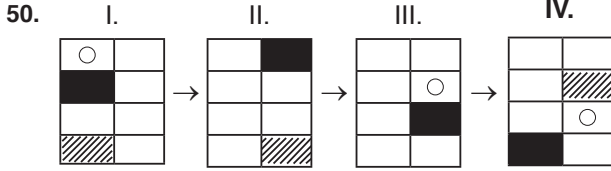
49.  $K = \frac{1}{4} = \frac{90}{360}$

$N = \frac{1}{6} = \frac{60}{360}$

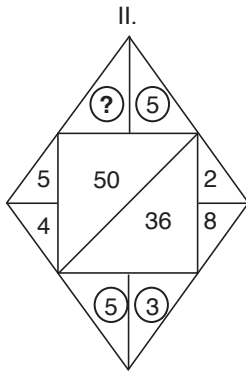
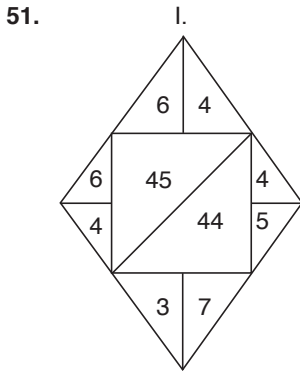
$M = \frac{5}{12} = \frac{150}{360}$

$\alpha = 360^\circ - 150 - 60 - 90 = 60^\circ$

Cevap: B



Cevap: B



$50 = 5.3 + ? . 5$   
 $\Rightarrow ? = 7$

Cevap: C

52.

⊙	2	3	4	6
4	2	♥	1	♥
6	3	2	♥	1
8	4	♥	2	♥
10	5	a	b	c

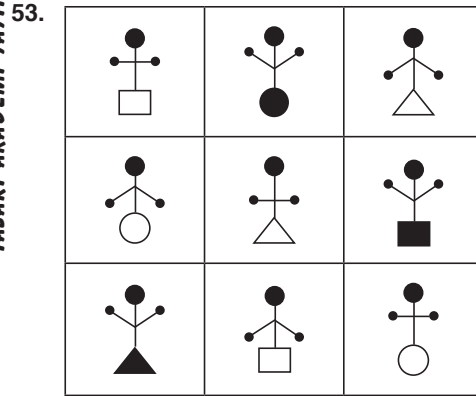
$\rightarrow \frac{10}{3} \notin \text{Tamsayı} \Rightarrow a = \heartsuit$

$\rightarrow \frac{10}{4} \notin \text{Tamsayı} \Rightarrow b = \heartsuit$

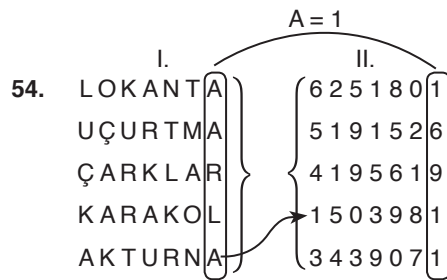
$\rightarrow \frac{10}{6} \notin \text{Tamsayı} \Rightarrow c = \heartsuit$

Cevap: E

TASARI AKADEMİ YAYINLARI



Cevap: E



$\Rightarrow \text{AKTURNA} = 1503981$

$\Rightarrow \text{KARAKOL}$   
 5 1 9 1 5 2 6

Cevap: B



55. I.  $112 \xrightarrow{+3} 115 \xrightarrow{+3} 118 \xrightarrow{-7} 111 \xrightarrow{-7} 104$

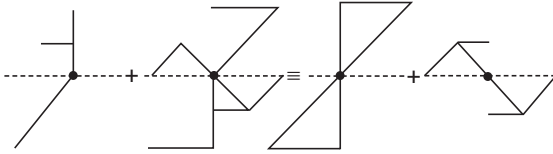
II.  $6 \xrightarrow{.7} 42 \xrightarrow{.7} 294 \xrightarrow{-3} 291 \xrightarrow{-3} 288$

III.  $81 \xrightarrow{+4} 85 \xrightarrow{+4} 89 \xrightarrow{-6} 83 \xrightarrow{-6} 77$

IV.  $11 \xrightarrow{.6} 66 \xrightarrow{.6} 396 \xrightarrow{-4} 392 \xrightarrow{-4} 388$

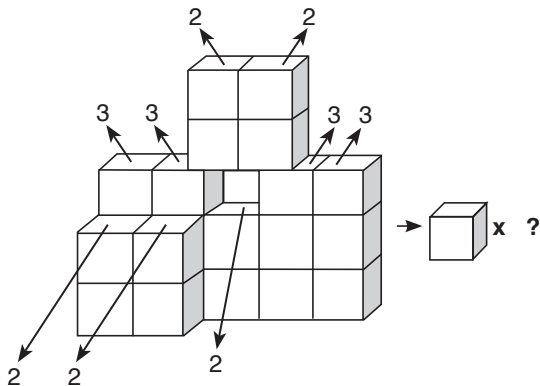
Cevap: D

56.



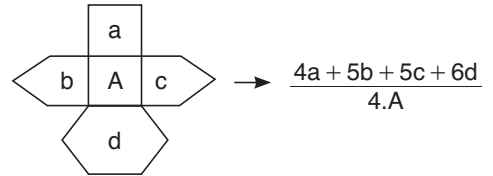
Cevap: B

57.

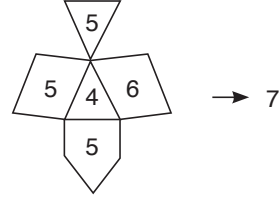


Cevap: B

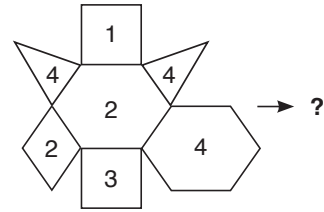
58. I.



II.



III.



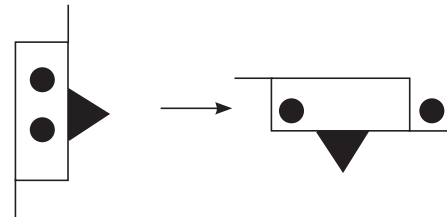
$$\frac{4.1 + 4.3 + 4.3 + 4.2 + 4.3 + 6.4}{6.2}$$

$$= \frac{4 + 12 + 12 + 8 + 12 + 24}{12}$$

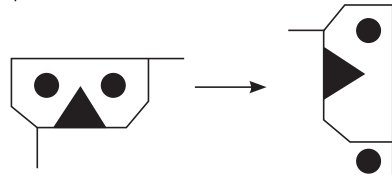
$$= \frac{72}{12} = 6$$

Cevap: C

59. I.

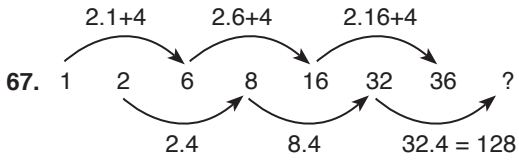


II.

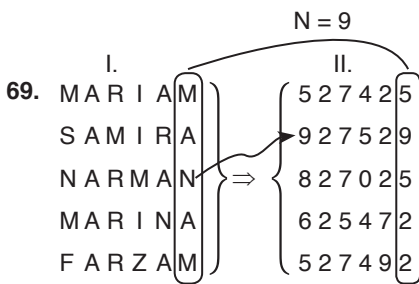
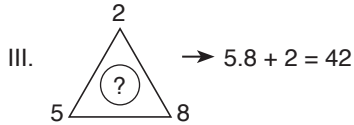
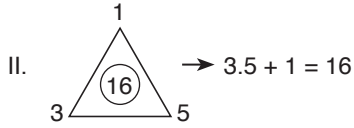
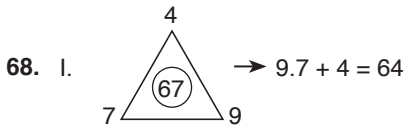


Cevap: A





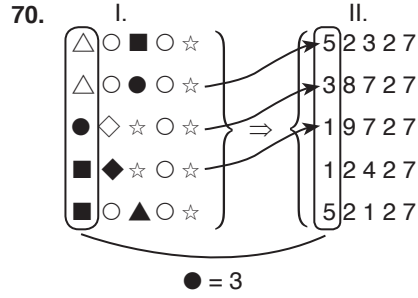
Cevap: B



$\Rightarrow \text{NARMAN} = 927529$

$\Rightarrow \text{SAMIRA} = 625472$

Cevap: D



$\Rightarrow \triangle \circ \bullet \circ \star = 52327$

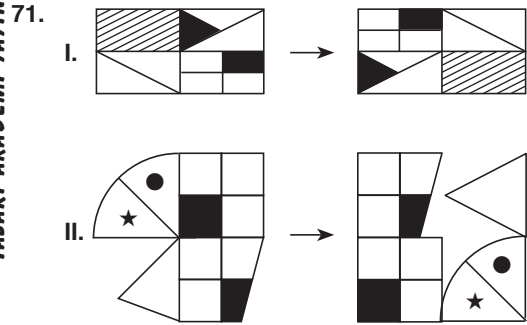
$\blacksquare \blacklozenge \star \circ \star = 19727$

$\blacklozenge = 9$

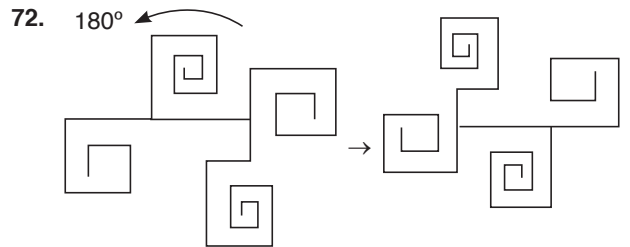
$\Rightarrow \blacksquare \blacklozenge \star \circ \star = \underline{19727}$

Cevap: C

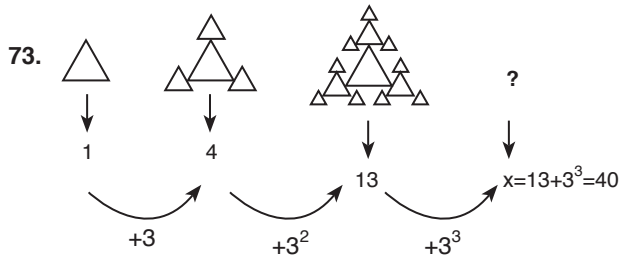
TASARI AKADEMİ YAYINLARI



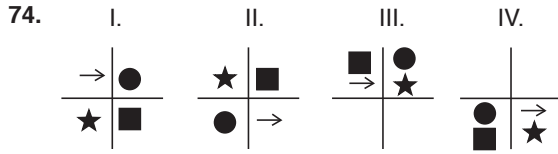
Cevap: B



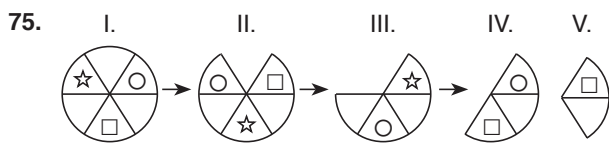
Cevap: D



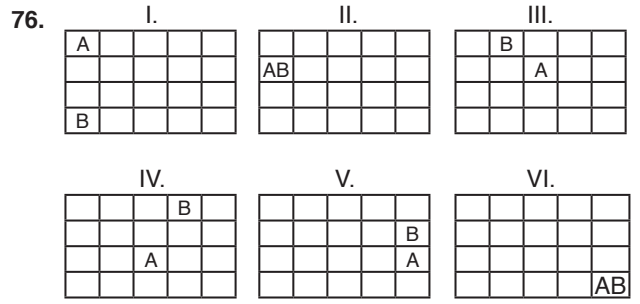
Cevap: E



Cevap: A

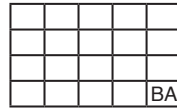


Cevap: E

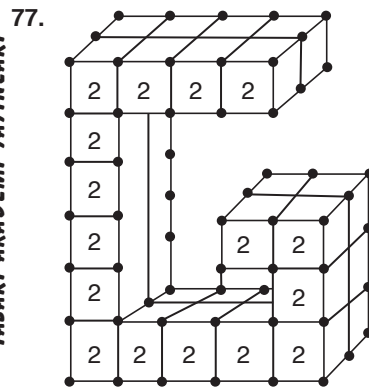


A → ↓ 1 br, → 3 br

B → → 2 br

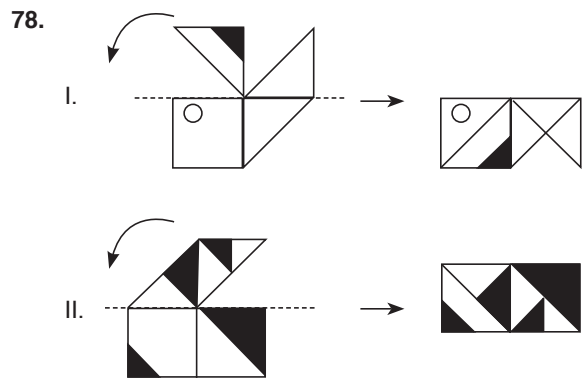


Cevap: D



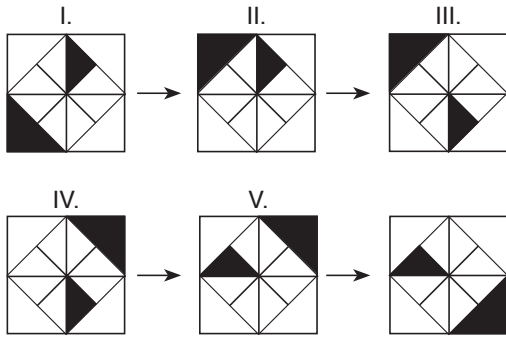
$2 \cdot 16 = 32$

Cevap: D



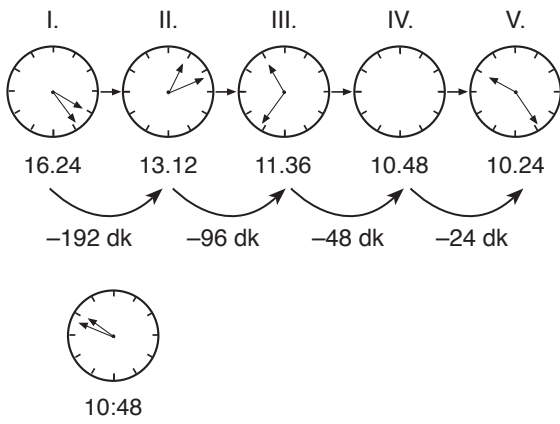
Cevap: D

79.



Cevap: A

80.



Cevap: E