

ÇÖZÜMLER

$$1. \frac{2\left(1 - \frac{1}{2}\left(\frac{3}{2}\right)^{-2}\right) - 3}{\left(1 + \frac{1}{2}\right)^{-1}} = \frac{2\left(\frac{1}{2} \cdot \frac{4}{9}\right) - 3}{\left(1 + \frac{1}{2}\right)^{-1}}$$

$$\frac{2\left(1 - \frac{2}{9}\right) - 3}{\left(\frac{3}{2}\right)^{-1}} = \frac{2 \cdot \frac{7}{9} - 3}{\frac{2}{3}}$$

$$= \frac{\frac{14}{9} - 3}{\frac{2}{3}} = \frac{14 - 27}{\frac{9}{3}} \cdot \frac{3}{2} = -\frac{13}{6}$$

Cevap: C

$$2. \frac{\frac{1}{10} - \frac{2}{10}}{\frac{4}{100} - \frac{25}{100}} = \frac{\frac{1}{10} - \frac{2}{10}}{\frac{4^2}{10^2} - \frac{25^5}{10^5}} = \frac{5}{2} \cdot \frac{2 \cdot 2}{5} = \frac{5}{2} \cdot \frac{4}{5}$$

$$= \frac{25 - 8}{10} = \frac{17}{10} = 1,7$$

Cevap: D

$$3. 2^x = 5$$

$$4^{2x+1} = 2^{2(2x+1)} = 2^{4x+2} = 2^{4x} \cdot 2^2 = (2^x)^4 \cdot 2^2 = 5^4 \cdot 2^2$$

Cevap: E

$$4. \frac{\frac{5}{10^3} \cdot 10^{32} + \frac{8}{10} \cdot 10^{32}}{10^{32}} = \frac{10^{32}(5+8)}{10^{32}} = 13$$

Cevap: C

$$5. \sqrt{4+2\sqrt{3}} - \sqrt{4-2\sqrt{3}} = \sqrt{3} + 1 - (\sqrt{3} - 1)$$

$$\begin{array}{c} \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ \sqrt{3} \oplus \sqrt{1} \quad \sqrt{3} \ominus \sqrt{1} \\ = \sqrt{3} + 1 - \sqrt{3} + 1 = 2 \end{array}$$

Cevap: E

$$6. \sqrt[15]{2^5 \sqrt{x}} = 5 \cdot 3 \sqrt[2^5]{x} = 15 \sqrt[2^5]{3^3}$$

$$\Rightarrow \sqrt[15]{2^5 \cdot x} = \sqrt[15]{2^5 \cdot 3^3} \Rightarrow x = 3^3$$

Cevap: C

$$7. \quad 30\left(\frac{a}{2} + \frac{b}{3} + \frac{c}{5}\right) = 30.12$$

$$\Rightarrow 15a + 10b + 6c = 30.12 = 360$$

Cevap: D

$$8. \quad \left. \begin{array}{l} a, b, c \in \mathbb{Z}^+ \\ a - b = 1 \\ a - c = 5 \end{array} \right\} \Rightarrow a + a - 1 + a - 5 - 3a - b$$

$c \in \mathbb{Z}^+$ olduğundan en az 1 olabilir.

$$c = a - 5 = 1 \Rightarrow a = b$$

$$3a - b = 3.6 - b = 18 - 6 = 12$$

Cevap: B

$$9. \quad B = \frac{33b - 7a}{9} = \frac{112}{3} - \frac{7a}{9}$$

Tabanı 3 yapmak için seçilebilecek en küçük doğal sayı $a = 3$ 'tür.

$$\frac{112}{3} - \frac{7 \cdot 3}{9} = \frac{112 - 7}{3} = \frac{105}{3} = 35$$

Cevap: E

$$10. \quad \text{Tek sayılarda toplam formülü} = n^2$$

$$n^2 - (1+3+\dots+29) = 2275$$

$$2n - 1 = 29$$

$$2n = 30$$

$$n = 15$$

$$n^2 - 15^2 = 2275$$

$$n^2 - 225 = 2275$$

$$n^2 = 2500$$

$$n = 50$$

Cevap: D

TASARI EĞİTİM YAYINLARI

$$11. \quad \frac{n \cdot (n-1)! \cdot (n+1)!}{(n-1)! \cdot (n+2) \cdot (n+1)!} = \frac{n}{n+2}$$

Cevap: C

12. Pay ile payda arasındaki farkları eşit olan basit kesirlerde payı büyük olan büyüktür.

$$\frac{15}{16} > \frac{14}{15} > \frac{13}{14} \rightarrow \underbrace{y+z}_{> x+z} > \underbrace{x+z}_{> x+y}$$

$$y+z > x+z \quad x+y > x+y$$

$$y > x \quad z > y$$

$$z > y > x$$

Cevap: A

13. $12 \leq a + 4 \leq 20$

$12 \leq b + 8 \leq 22$

$(a+4) \uparrow$
 $(b+8) \downarrow \Rightarrow \max\left(\frac{a+4}{b+8}\right)$ i bulurum.

$$\frac{\frac{20}{3}}{\frac{12}{3}} = \frac{5}{3}$$

Cevap: D

14. $2x - 3 = 4$

$2x = 7$

$x = \frac{7}{2}$

$\Rightarrow \frac{7}{2} - \frac{1}{2} = \frac{6}{2} = 3$

$2x - 3 = -4$

$2x = -1$

$x = -\frac{1}{2}$

Cevap: A

15. $\frac{b+a}{ab} \cdot ab(a-b) = \frac{(b+a) \cdot ab \cdot (a-b)}{ab \cdot (a-b) \cdot (a+b)} = 1$

Cevap: C

16. $a^3 + b^3 = (a+b)(a^2 - ab + b^2)$

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

$(a+b)^2 = 1^2$

$a^2 + b^2 + 2ab = 1$

$a^2 + b^2 + 2(-3) = 1$

$a^2 + b^2 = 7$

$a^3 + b^3 + (a+b)(a^2 - ab + b^2)$

$= 1 \cdot (7 - (-3)) = 1 \cdot (7 + 3) = 10$

Cevap: E

17. $a + 2b = 2c$

$- / 2b - 4a = -2c$

$a + 2b = 2c$

$+ \quad -2b + 4a = 2c$

$5a = 4c$

$\frac{5}{4} = \frac{c}{a}$

Cevap: B

18. $\frac{1}{x-3} + \frac{1}{x-6} = \frac{2}{x}$

$\frac{x-6+x-3}{(x-3) \cdot (x-6)} = \frac{2}{x}$

$\frac{2x-9}{x^2-9x+18} = \frac{2}{x}$

$2x^2 - 9x = 2x^2 - 18x + 36$

$9x = 36$

$x = 4$

Cevap: B

$$\begin{aligned}
 19. \quad a * b &= (a - b)^2 + 5\sqrt{ab} \\
 2 * 8 &= (\sqrt{2} - \sqrt{8})^2 + 5\sqrt{\sqrt{2} \cdot \sqrt{8}} \\
 &= 2 + 8 - 2 \cdot \sqrt{2} \cdot \sqrt{8} + 5\sqrt{\sqrt{16}} \\
 &= 10 - 2 \cdot 4 + 5 \cdot 2 \\
 &= 10 - 8 + 10 \\
 &= 12
 \end{aligned}$$

Cevap: B

$$\begin{array}{r}
 A \ 5 \ B \\
 - \ C \ A \ 3 \\
 \hline
 B \ 7 \ 9 \\
 \swarrow \\
 4x \equiv -6
 \end{array}$$

B sayısı bir onluk aldıktan sonra 3 çıkarıldığında 9 bulunuyor.

$$B + 10 - 3 = 9 \Rightarrow B = 2 \text{ olur.}$$

• 5 sayısı sağdaki basamağa bir ondalık verip 4 kaldıktan sonra A çıkarılıp 7 alması için 4 soldan ondalık almıştır.

$$\begin{aligned}
 4 + 10 - A &= 7 \\
 A &= 7
 \end{aligned}$$

$$\begin{array}{r}
 \text{Son olarakta} \quad 7 \ 5 \ 2 \\
 - \ C \ 7 \ 3 \\
 \hline
 2 \ 7 \ 9 \rightarrow c = 4 \\
 A + B + C = 7 + 2 + 4 = 13
 \end{array}$$

Cevap: A

$$\begin{aligned}
 21. \quad x^2 &= x - 3 \text{ diyelim.} \\
 f(x - 3 + 3) &= 2(x - 3) + 9 \\
 f(x) &= 2x - 6 + 9 = 2x + 3
 \end{aligned}$$

Cevap: B

$$\begin{aligned}
 22. \quad g(x) &= x^3 + 3x^2 + 3x + 1 = (x+1)^3 \\
 g(\sqrt[3]{2} - 1) &= (\sqrt[3]{2} - 1 + 1)^3 = (\sqrt[3]{2})^3 = 2 \\
 f(g(\sqrt[3]{2} - 1)) &= f(2) = x + 5 = 2 + 5 = 7
 \end{aligned}$$

Cevap: D

$$\begin{aligned}
 23. \quad P(0) &= 2 \text{ ise } x = -1 \text{ olsun.} \\
 P(0) &= (2(-1) - 1)^2 - b(-1) + 5 \\
 &= (-2 - 1)^2 + b + 5 \\
 &= (-3)^2 + b + 5 \\
 &= 9 + b + 5 = 14 + b
 \end{aligned}$$

$$P(0) = 14 + b = 2$$

$$b = -12$$

$$P(-1) \text{ için } x = -2 \text{ olmalı.}$$

$$\begin{aligned}
 P(-1) &= (2 \cdot (-2) - 1)^2 - (-12) \cdot (-2) + 5 \\
 &= (-4 + 1)^2 + 12 \cdot (-2) + 5 \\
 &= (-5)^2 - 24 + 5 \\
 &= 25 - 24 + 5 \\
 &= 6
 \end{aligned}$$

Cevap: A

$$24. \quad (x_1^2 + x_2^2)^2 = x_1^2 + x_2^2 + 2x_1 \cdot x_2$$

$$x_1 + x_2 = -\frac{b}{a} = 5$$

$$x_1 \cdot x_2 = \frac{c}{a} = -8$$

$$\Rightarrow 5^2 = x_1^2 + x_2^2 + 2(-8)$$

$$x_1^2 + x_2^2 = 25 + 16$$

$$\begin{aligned}
 x_1^2 + x_2^2 - 5(x_1 + x_2) &= 25 + 16 - 5(5) \\
 &= 25 + 16 - 25 \\
 &= 16
 \end{aligned}$$

Cevap: E

25. $2017 \equiv 2 \pmod{5}$

$$2^1 = 2 \pmod{5}$$

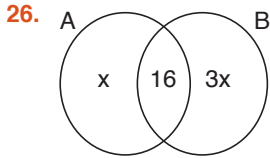
$$(2^2)^{1008} = (-1)^{1008}$$

↓

4 yerine -1'de yazılabilir.

$$\textcircled{2} \cdot 2^{2016} = 1 \cdot \textcircled{2}$$

Cevap: C



$$2(x + 16) = 4x + 16$$

$$2x + 32 = 4x + 16$$

$$16 = 2x \Rightarrow x = 8$$

$$\Rightarrow n(A) = x + 16 = 8 + 16 = 24$$

Cevap: A

27. $\frac{x}{a} \cdot \frac{b}{y} = 3 \Rightarrow \frac{b}{y} = \frac{30}{x}$

$$\Rightarrow \frac{a^2}{x^2} + \left(\frac{3a}{x}\right)^2 = 40$$

$$\frac{a^2}{x^2} + \frac{9a^2}{x^2} = 40$$

$$10a^2 = 40x^2$$

$$a^2 = 4x^2$$

$$a = 2x \Rightarrow x = \frac{a}{2}$$

Cevap: A

28. $\left(\sqrt{\frac{\sqrt{x+3}}{\sqrt{x-3}}}\right)^2 = (\sqrt{x+3})^2$

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

$$\frac{1}{\sqrt{x-3}} = \sqrt{x+3}$$

$$1 = x - 9$$

$$\boxed{10 = x}$$

Cevap: E

29. $2/ \quad 2x - 3y = 3$

• $3/ \quad x + 2y = 5$

$$4x - 6y = 6$$

$$+ \quad 3x + 6y = 15$$

$$7x = 6 + 15$$

$$7x = 21$$

$$x = 3 \Rightarrow 3 + 2y = 5$$

$$2y = 2$$

$$y = 1$$

$$\Rightarrow \frac{x}{y} = \frac{3}{1} = 3$$

Cevap: B

30. $3x + y - 3z - \frac{2x - y + 3z}{4}$

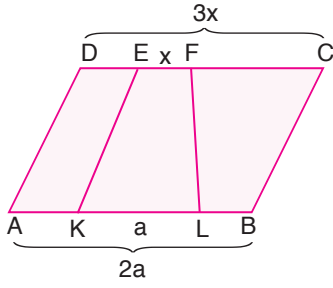
$$12x + 4y - 12z - 2x + y - 3z = \frac{10x + 5y - 15z}{4}$$

$$= \frac{5(2x + y - 3z)}{4}$$

$$= \frac{5 \cdot 44}{4} = 55$$

Cevap: C

37.



$$3x = 2a$$

$$\downarrow \quad \downarrow$$

$$2k \quad 3k$$

$$|AB| = |DC| = 6k$$

$$\frac{(2k + 3k)h}{2} = 25$$

$$5k \cdot h = 50$$

$$k \cdot h = 10$$

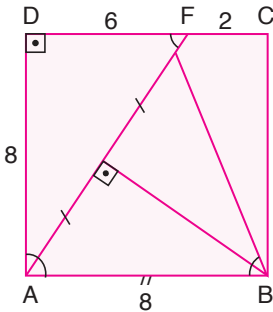
$$6k \cdot h = ?$$

$$6kh = 6 \cdot 10$$

$$= 60$$

Cevap: A

38.



Benzerlik:

$$\frac{6}{a} \sim \frac{10}{8}$$

$$10a = 48$$

$$a = 4,8$$

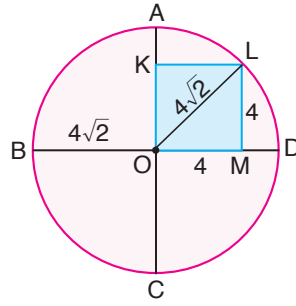
$$2a = 9,6$$

$$10 - 2a = x$$

$$\rightarrow 10 - 9,6 = 0,4 = \frac{2}{5}$$

Cevap: A

39.

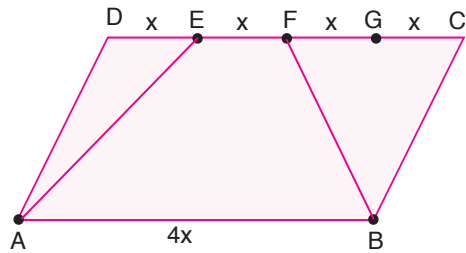


$$4 \cdot 4 = 16$$

Cevap: C

TASARI EĞİTİM YAYINLARI

40.



$$\frac{A(ABFE)}{A(ABCD)} = \frac{\frac{(x + 4x) \cdot h}{2}}{4x \cdot h}$$

$$= \frac{5x \cdot h}{2} \cdot \frac{1}{4x \cdot h}$$

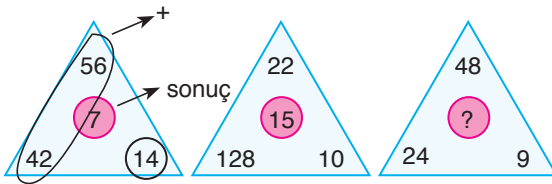
$$= \frac{5}{8}$$

Cevap: D

41. F → 6 FAİK = ?
 A → 8 6879
 İ → 7
 K → 9

Cevap: A

42.

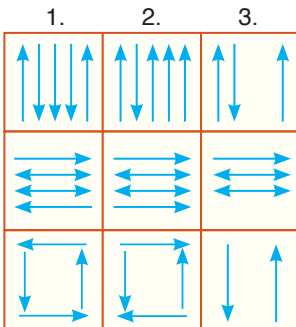


$$\frac{56 + 42}{14} = 7$$

$$\frac{48 + 24}{9} = \frac{72}{9} = 8$$

Cevap: C

43.



1 + 2 sütünü topladığımızda aynı yönlü oklar 3. sütuna yazılırken zıt yönlü oklar birbirini nötrlemiştir.

Cevap: C

44. 3, 6, 4, 12, 9
 .2 -2 .3 -3

Cevap: E

45.

- → ·
 ▲ → +
 (2 ■ 1) ▲ (4 ▲ 2)
 (2.1) + (4 + 2)
 2 + 6 = 8

Cevap: C

46.

| | | | | |
|----|----|----|----|-----|
| | 15 | 20 | 50 | 19 |
| 2 | ▲ | ■ | ■ | ▲ |
| 3 | ■ | ▲ | ▲ | ▲ |
| 10 | ▲ | ■ | ■ | ▲ |
| 5 | ■ | I | II | III |
| | ■ | ■ | ▲ | |

Cevap: C

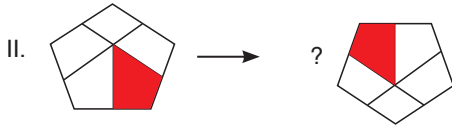
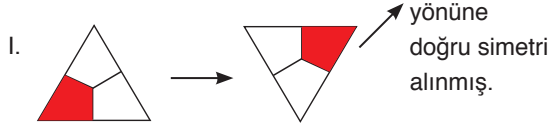
$$47. \begin{cases} \frac{5x}{4} = 5, & x = 4 \\ 3y = 6, & y = 2 \end{cases} \left. \begin{array}{l} 2x - \frac{y}{2} \\ = 2 \cdot 4 - \frac{2}{2} \\ = 8 - 1 \\ (5 \blacksquare 6) = 7 \end{array} \right\}$$

$$\begin{cases} 2x = b, & x = 3 \\ \frac{2y}{5} = 4, & y = 10 \end{cases} \left. \begin{array}{l} \frac{4x}{3} + 3y \\ = \frac{4 \cdot 3}{3} + 3 \cdot 10 \\ = 4 + 30 \\ (6 \bullet 4) = 34 \end{array} \right\}$$

$$(5 \blacksquare 6) + (6 \bullet 4) \\ = 7 + 34 \\ = 41$$

Cevap: D

48.

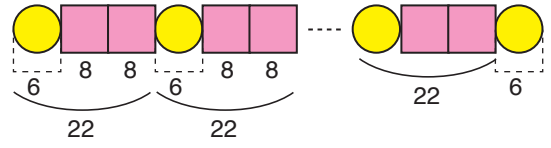


Cevap: E

$$49. \begin{array}{r} a + b = 61 \\ - / b + c = 60 \\ + a + c = 79 \\ \hline 2a = 80 \\ a = 40 \\ b = 21 \\ 40 - 21 = 19 \end{array}$$

Cevap: A

50.



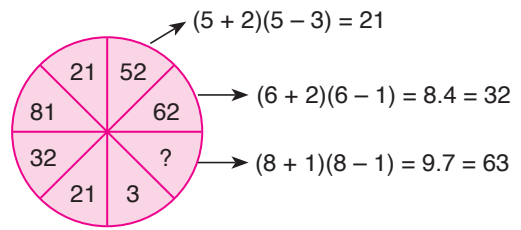
$$\Rightarrow 22 \cdot x + 6 = a$$

$$x = 13 \text{ için}$$

$$22 \cdot 13 + 6 = 292 = a$$

Cevap: A

51.



Cevap: C

$$52. \begin{array}{l} 2.5 - 1 = 9 \\ 2.9 - 1 = 17 \\ 2.17 - 1 = 33 \\ 2.33 - 1 = 65 \\ 2.65 - 1 = 129 \end{array}$$

Cevap: D

53. İçten dışa doğru;

$$\frac{120}{4} = 30$$

$$\frac{120}{12} = 10$$

∴

$$\frac{120}{?} = 1 \Rightarrow ? = 120$$

Cevap: D

54. A: 1 + 2 satır = 3. satır

$$6 + A = 11$$

$$A = 5$$

B: 1 - 4 satır = 2 satır

$$6 - B = A$$

$$6 - B = 5$$

$$B = 1$$

$$A + B = ?$$

$$= 5 + 1 = 6$$

Cevap: B

55. $2^4 + 7 = 23$

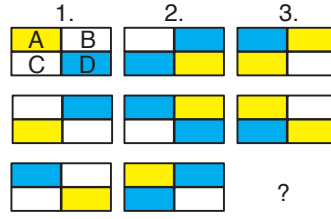
$$3^2 + 9 = 18$$

$$5^3 + 4 = 129$$

$$7^2 + 5 = 54$$

Cevap: A

56.

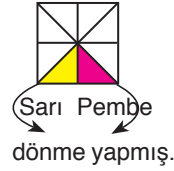


1. ve 2. sütunların aynı kutucuklarını topladığımızda 3. sütunda farklı bir renk elde edilmiş.

Cevap: E

TASARI EĞİTİM YAYINLARI

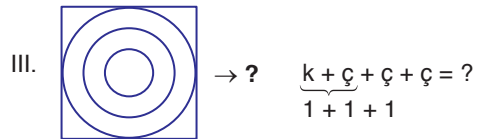
57.



dönme yapmış.

Cevap: B

58.



çember + kare = 1'li

çember = 1'i

üçgen = 3'ü

kare = 4'ü temsil ediyor.

Cevap: C

$$\begin{array}{r}
 59. \quad KLM + ABC = 1524 \\
 + \quad KLM - ABC = 226 \\
 \hline
 2KLM = 1750 \\
 KLM = 875 \\
 8 + 7 + 5 = 20
 \end{array}$$

Cevap: A

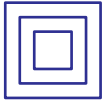
60. 2 yarım çember üst üste biner.

Cevap: C

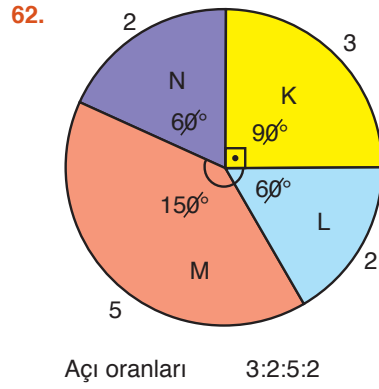
61. İç bükey / konkav



Dış bükey (konveks)



Cevap: A



Cevap: A

$$63. \quad X: \frac{4}{2} = 2$$

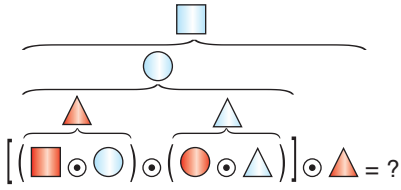
$$Y = \frac{8}{4} = 2$$

$$Z = \frac{12}{4} = 3$$

$$T = \frac{8}{8} = 1$$

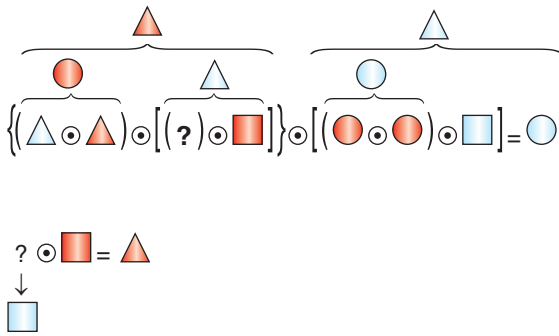
Cevap: E

64.



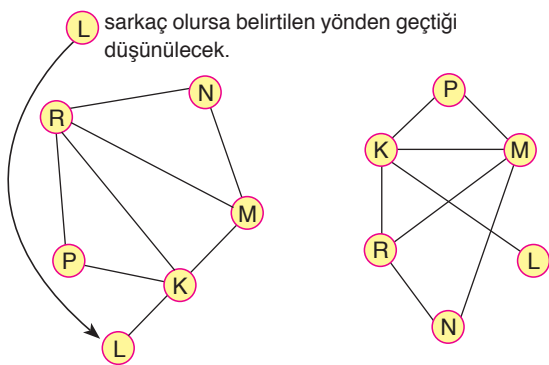
Cevap: C

65.



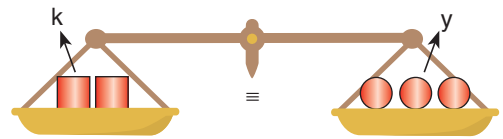
Cevap: C

66.

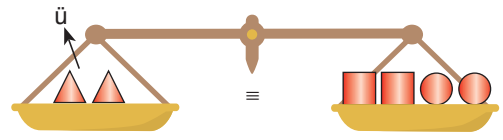


Cevap: A

67. I.



II.



III.



$$2k = 3y$$

$$\downarrow \quad \downarrow$$

$$3x \quad 2x$$

$$2\ddot{u} = 2k + 2y = 2.3x + 2.2x$$

$$2\ddot{u} = 6x + 4x$$

$$2\ddot{u} = 10x$$

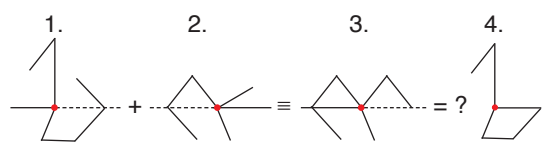
$$\ddot{u} = 5x$$

$$\blacktriangle\blacktriangle\blacktriangle = 3.5x = 15x$$

$$\blacksquare\blacksquare\blacksquare\blacksquare\blacksquare = 5.3x = 15x$$

Cevap: C

68.



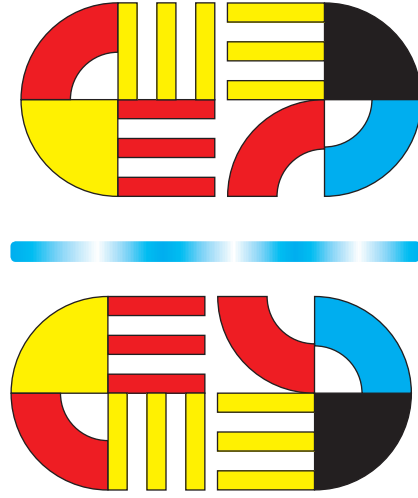
$$1 + 2 = 3 + 4 \text{ olmalı.}$$

Cevap: E

69. $a^{b+3} = 32 = 2^5$
 $a^c = 64 = 2^6$ $\rightarrow a = 2$
 $\frac{d}{c} = \frac{4}{3}$
 $b+3 = 5 \Rightarrow b = 2$
 $c = 6$
 $\frac{d}{c} = \frac{d}{6} = \frac{4}{3}$
 $d = 8$
 $a + b + c + d = ?$
 $2 + 2 + 6 + 8 = 18$

Cevap: E

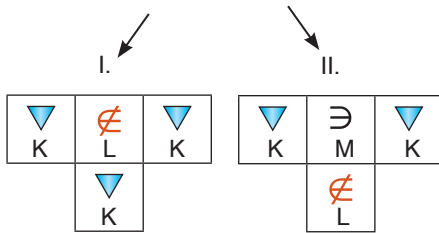
71.



Cevap: A

70.

| | | | | | | |
|---|---|---|---|---|---|---|
| Σ | Σ | Σ | ♥ | Σ | ▽ | ⊗ |
| ⊗ | ♥ | Σ | ★ | ⊗ | Σ | ★ |
| ♥ | ★ | ♥ | ▽ | Σ | ♥ | Σ |
| ▽ | ∋ | ▽ | ♥ | ▽ | ∉ | ▽ |
| ★ | ∉ | ∋ | ∉ | ∋ | ▽ | Σ |
| ∋ | ▽ | Σ | ▽ | ★ | ★ | ⊗ |
| ∉ | ▽ | ∉ | Σ | ∉ | ⊗ | Σ |



şeklin içinden verilen 2 parça uygun yerler bulunur.

Cevap: B

72. En alt tabanda = 15
 En 2. tabanda = 9
 En 3. tabanda = 7
 En 4. tabanda = $\frac{+ 5}{36 \text{ adet}}$

Cevap: C

73. $\alpha = \frac{|11d - 60s|}{2}$
 $\alpha = \frac{|11 \cdot 18 - 60 \cdot 4|}{2}$
 $\alpha = |11 \cdot 9 - 60 \cdot 2|$
 $21 = \alpha = |99 - 120|$

Cevap: E

74. 540° derece dönme 1 tur + 180° dönmesidir.

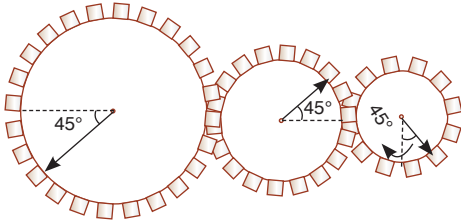
1. çark simetrisini alır.
2. çark simetrisini alır.
2. çark

$$\frac{12r}{8r} = \frac{\frac{1}{2} \text{ tur.}}{?}$$

$$312r \cdot \frac{1}{2} = 8r \cdot ?$$

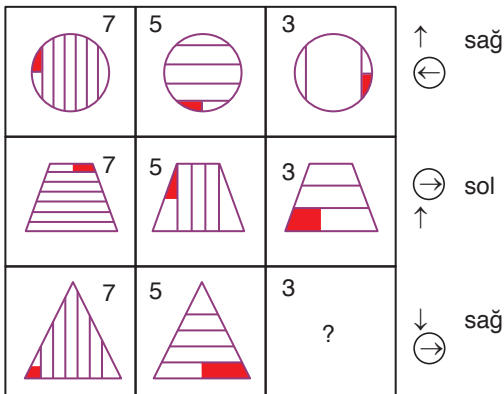
$\frac{3}{4}$ tur atar.

3. çark $12r \frac{1}{2}$ tursa, $4r \frac{3}{2}$ tur döner.



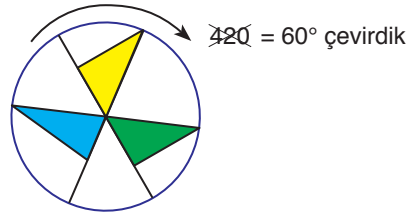
Cevap: D

75.



Cevap: E

76.



Cevap: D

77.

- △ ABCDE = CDABE
- ◻△ ABCDE = ◻CDABE = CADEB
- △ CADEB = BEDAC
- BEDAC = ACDBE

Cevap: E

78.

$$\frac{5}{6} * \left(-\frac{2}{3}\right) - \frac{2}{3} = \frac{1}{6}$$

Cevap: E

