

TEST - 1 ÇÖZÜMLER

1. • $b + b = 30$

$2b = 30$

$b = 15$

• $a + b = 4a$

$b = 3a$

$15 = 3a$

$a = 5$

$\Rightarrow a + b + c = 5 + 15 + 40 = 60$

• $a + c = 3b$

$5 + c = 3 \cdot 15$

$5 + c = 45$

$c = 40$

Cevap: D

4. • $c + b = 5b$

$c = 4b$

• $c + a = 32$

$-a + b = 23$

$\frac{c - b = 9}{c - b = 9}$

↓

$4b - b = 9$

$3b = 9$

$b = 3$

• $a + b = 23$

$a + 3 = 23$

$a = 20$

$\Rightarrow \frac{c}{b} \cdot a = \frac{4b}{b} \cdot 20 = 4 \cdot 20 = 80$

Cevap: B

2. • $a + a = 22$

$2a = 22$

$a = 11$

• $c + c = 30$

$2c = 30$

$c = 15$

• $b + c = 3a$

$b + 15 = 3 \cdot 11$

$b + 15 = 33$

$b = 18$

$\Rightarrow b + c - a = 18 + 15 - 11 = 22$

Cevap: C

5. • $a + b = 5b$

$a = 4b$

• $b + c = 6b$

$c = 5b$

• $a + c = 36$

$4b + 5b = 36$

$9b = 36$

$b = 4$

$\Rightarrow a = 4 \cdot b = 4 \cdot 4 = 16$

$\Rightarrow c = 5b = 5 \cdot 4 = 20$

$\Rightarrow a \cdot c + b = 16 \cdot 20 + 4 = 324$

Cevap: E

3. • $c + c = 30$

$2c = 30$

$c = 15$

• $a + c = 24$

$a + 15 = 24$

$a = 9$

• $b + c = 2c + 4$

$b = c + 4$

$b = 15 + 4$

$b = 19$

$\Rightarrow a + b + c = 9 + 19 + 15 = 43$

Cevap: A

6. • $c \cdot c = 144$

$c^2 = 144$

$c = 12$

• $b \cdot b = c$

$b^2 = 12$

$b = \sqrt{12}$

• $a \cdot a = b$

$a^2 = \sqrt{12}$

$a = \sqrt[4]{12}$

Cevap: C

TEST - 1 ÇÖZÜMLER

7. • $a \cdot a = 36$ • $a \cdot b = 18$ • $a \cdot c = 42$
 $a^2 = 36$ $6 \cdot b = 18$ $6 \cdot c = 42$
 $a = 6$ $b = 3$ $c = 7$

$$\Rightarrow b \cdot c = 3 \cdot 7 = 21$$

Cevap: D

8. • $b + b = 12$ • $b + c = 14$ • $a + c = 24$
 $2b = 12$ $6 + c = 14$ $a + 8 = 24$
 $b = 6$ $c = 8$ $a = 16$

$$\Rightarrow \frac{b \cdot c}{a} = \frac{6 \cdot 8}{16} = 3$$

Cevap: A

9. • $a \cdot b = 12$ $\Rightarrow a \cdot b = 12$
 $\times a \cdot c = 15$ $3 \cdot b = 12$
 $a^2 \cdot b \cdot c = 12 \cdot 5$ $b = 4$
 \downarrow
 $a^2 \cdot 20 = 12 \cdot 15$ $\Rightarrow a \cdot c = 15$
 $a^2 = 9$ $3 \cdot c = 15$
 $a = 3$ $c = 5$

$$\Rightarrow \frac{3 \cdot b \cdot c}{a} = \frac{3 \cdot 4 \cdot 5}{3} = 20$$

Cevap: E

10. • $a \cdot c = 72$ $\Rightarrow \frac{a \cdot c}{a \cdot b} = \frac{72}{24}$
 $a \cdot b = 24$ $\frac{c}{b} = 3$

Cevap: B

11. • $a \cdot x \cdot c = 65$ • $d \cdot x \cdot c = 35$
 $\times b \cdot x \cdot c = 45$ $d \cdot x \cdot 5 = 35$
 $a \cdot b \cdot c^2 = 65 \cdot 45$ $d = 7$

$$117 \cdot c^2 = 65 \cdot 45$$

$$c^2 = \frac{65 \cdot 45}{117}$$

$$c^2 = 25$$

$$c = 5$$

Cevap: C

12. • $a \cdot \cancel{a} = 7 \cdot \cancel{a}$ • $b \cdot \cancel{b} = 9 \cdot \cancel{b}$ • $c \cdot \cancel{c} = 11 \cdot \cancel{c}$
 $a = 7$ $b = 9$ $c = 11$

$$\Rightarrow a + b - c = 7 + 9 - 11 = 5$$

Cevap: B

TEST - 2 ÇÖZÜMLER

$$1. \cdot a + b = 3b - 16$$

$$a = 2b - 16$$

$$\cdot a + c = 31 \Rightarrow 2b - 16 + c = 31$$

$$2b + c = 47$$

$$\cdot b + c = 33$$

$$\begin{array}{r} -2b + c = 47 \\ -b = -14 \end{array}$$

$$\boxed{b = 14}$$

$$\Rightarrow a = 2b - 16 = 2 \cdot 14 - 16 = 28 - 16 = 12$$

$$\Rightarrow a + c = 31 \Rightarrow 12 + c = 31 \Rightarrow c = 19$$

$$\Rightarrow d + c = 5a - 9 \Rightarrow d + 19 = 51 \Rightarrow d = 32$$

$$\begin{array}{cc} \downarrow & \downarrow \\ 19 & 12 \end{array}$$

$$\Rightarrow b + d = 14 + 32 = 46$$

$$2. \cdot a + b = 2c - 15$$

$$a + c = 2b + 6$$

$$+ b + c = 3a - 7$$

$$\begin{array}{r} 2a + 2b + 2c = 2b + 2c + 3a - 16 \\ 16 = a \end{array}$$

$$3. \text{ I. } a - b = 12$$

$$\begin{array}{r} + b - c = 108 \\ \hline a - c = 120 \end{array}$$

$$\downarrow$$

$$11c$$

$$11c - c = 120$$

$$10c = 120$$

$$\boxed{c = 12}$$

$$\Rightarrow a = 11 \cdot c = 11 \cdot 12 = 132$$

$$\Rightarrow b - c = 108$$

$$b - 12 = 108$$

$$b = 120$$

$$\Rightarrow a + b + c = 132 + 120 + 12 = 264$$

Cevap: D

Cevap: E

Cevap: C

$$4. \text{ I. } a + b = \frac{11}{3}$$

$$4k + 7k = \frac{11}{3}$$

$$11k = \frac{11}{3}$$

$$k = \frac{1}{3}$$

$$\Rightarrow a \cdot b = 4k \cdot 7k = \frac{4}{3} \cdot \frac{7}{3} = \frac{28}{9}$$

$$\text{II. } a \cdot c = 3 \Rightarrow \frac{a \cdot c}{b \cdot c} = 3 \cdot \frac{4}{7}$$

$$b \cdot c = \frac{21}{4}$$

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

$$\Rightarrow a = 4k \quad b = 7k$$

Cevap: E

$$5. \text{ I. } b + c = 32$$

$$\downarrow$$

$$3c$$

$$4c = 32$$

$$\boxed{c = 8}$$

$$\text{II. } a \cdot b = 9c$$

$$a \cdot c = b$$

$$\Rightarrow \frac{a \cdot b}{a \cdot c} = \frac{9c}{b}$$

$$b^2 = 9c^2$$

$$b = 3c$$

Cevap: D

$$6. \cdot \cancel{a} \cdot c = 3 \cancel{a} b$$

$$c = 3b$$

$$\cdot a \cdot c = 6b$$

$$\downarrow$$

$$3b$$

$$a \cdot 3b = 6b \Rightarrow a = 2$$

$$\cdot a \cdot a = b^3$$

$$2 \cdot 2 = b^3$$

$$4 = b^3$$

$$b = \sqrt[3]{4}$$

Cevap: D

TEST - 2 ÇÖZÜMLER

7. I. $\cdot a + a = 16c$

$2a = 16c$

$a = 8c$

$\cdot c + c = 8b$

$2c = 8b$

$c = 4b$

$\frac{c}{4} = b$

$\Rightarrow (a + c) \cdot b = (16 + 2) \cdot \frac{1}{2} = 18 \cdot \frac{1}{2} = 9$

Cevap: D

8. I. $\cdot a + a = 6c$

$2a = 6c$

$a = 3c$

$\cdot b + c = a + 8$

\downarrow

$3c$

$b + c = 3c + 8$

$b - 2c = 8$

II. $b \cdot c = 4a$

\downarrow

$3c$

$b \cdot c = 4 \cdot 3c$

$b = 12$

$\Rightarrow b - 2c = 8$

$12 - 2c = 8$

$4 = 2c$

$c = 2$

Cevap: A

9. $\cdot a + b = 5b$

$a = 4b$

$\cdot a + c = 60$

\downarrow

$4b$

$4b + c = 60$

$\Rightarrow a \cdot b - c = 20 \cdot 5 - 40 = 60$

$\cdot -/ b + c = 45$

$+ 4b + c = 60$

$3b = 15$

$b = 5$

$\Rightarrow a = 4 \cdot b = 4 \cdot 5 = 20$

$\Rightarrow b + c = 45$

$5 + c = 45$

$c = 40$

Cevap: D

10. $a + b = 4c$

$+ 4/a + c = 15$

$5a + 4c + b = 4c + 60$

$5a + b = 60$

Cevap: E

11. $\cdot a + c = 4c$

$a = 3c$

$\cdot a + b = 28$

$- b + c = 20$

$a - c = 8$

$\Rightarrow \frac{2b}{c} = \frac{2 \cdot 16}{4} = 8$

$\cdot a - c = 8$

\downarrow

$3c$

$2c = 8$

$c = 4$

$\Rightarrow b + c = 20$

\downarrow

4

$b + 4 = 20$

$b = 16$

Cevap: C

12. $a + b = c + 5$

$b + c = a + 3$

$+ a + c = b + 21$

$2a + 2b + 2c = a + b + c + 29$

$a + b + c = 29$

$\cdot a + b + c = 29$

\downarrow

$c + 5 + c = 29$

$2c = 24$

$\cdot a + c + b = 29$

\downarrow

$b + 21 + b = 29$

$2b = 8$

$b = 4$

$\Rightarrow 2c + b = 24 + 4 = 28$

Cevap: E

TEST - 3 ÇÖZÜMLER

$$\begin{array}{l}
 1. \quad a + a = 6c \quad a + b = 5a - c \\
 \quad 2a = 6c \quad \downarrow \\
 \quad \boxed{a = 3c} \quad 3c + b = 5(3c) - c \\
 \quad \quad \quad 3c + b = 15c - c \\
 \quad \quad \quad b = 14c - 3c \\
 \quad \quad \quad \boxed{b = 11c} \\
 \Rightarrow \frac{a+b}{c} = \frac{3c+11c}{c} = \frac{14c}{c} = 14
 \end{array}$$

Cevap: D

$$\begin{array}{l}
 2. \quad \text{I. } a \cdot b = 48 \\
 \quad \quad + b \cdot c = 192 \\
 \quad \quad \hline
 \quad a \cdot b + b \cdot c = 240 \\
 \quad b(a + c) = 240 \\
 \quad b \cdot 20 = 240 \\
 \quad \quad \boxed{b = 12} \\
 \Rightarrow a \cdot 12 = 48 \Rightarrow \boxed{a = 4} \\
 \Rightarrow a + b - c = 4 + 12 - 16 = 0
 \end{array}$$

$$\begin{array}{l}
 \text{II. } a + c = 20 \\
 \quad \quad \downarrow \\
 \quad \Rightarrow 4 + c = 20 \\
 \quad \quad \quad \boxed{c = 16}
 \end{array}$$

Cevap: A

$$\begin{array}{l}
 3. \quad a + c = 21 - c \Rightarrow a + 2c = 21 \\
 \quad a + b = 15 - a \Rightarrow 2a + b = 15 \\
 \quad b + c = 12 - b \Rightarrow +2b + c = 12 \\
 \quad \quad \quad \hline
 \quad \quad \quad 3(a + b + c) = 48 \\
 \quad \quad \quad a + b + c = 16
 \end{array}$$

Cevap: E

$$\begin{array}{l}
 4. \quad a + a = c \Rightarrow c = 2a \\
 \quad a + b = 35 \Rightarrow b = 35 - a \\
 \quad b + c = 2c - 1 \Rightarrow 35 - a + 2a = 2(2a) - 1 \\
 \quad \quad \quad 35 + a = 4a - 1 \\
 \quad \quad \quad 3a = 36 \\
 \quad \quad \quad \boxed{a = 12} \\
 \Rightarrow c = 2a = 2 \cdot 12 = 24 \\
 \quad b = 35 - a = 35 - 12 = 23 \\
 \Rightarrow a - b + c = 12 - 23 + 24 = 13
 \end{array}$$

Cevap: C

$$\begin{array}{l}
 5. \quad \text{I. } a + c = 11 \quad \text{II. } a \cdot c = 28 \Rightarrow a = 4, c = 7 \\
 \quad b + c = 10 \quad b \cdot c = 21 \Rightarrow b = 3, c = 7 \\
 \quad a + d = 10 \quad a \cdot d = 24 \Rightarrow a = 4, d = 6 \\
 \quad b + d = 9 \quad b \cdot d = 18 \Rightarrow b = 3, d = 6
 \end{array}$$

$$\Rightarrow (a - c) + (b - d) = (4 - 7) + (3 - 6) = -3 - 3 = -6$$

Cevap: A

$$\begin{array}{l}
 6. \quad b \cdot c = 18 \\
 \quad \times a \cdot c = 12 \\
 \quad \hline
 \quad a \cdot b \cdot c^2 = 18 \cdot 12 \\
 \quad \quad \downarrow \\
 \quad 8c \cdot c^2 = 18 \cdot 12 \\
 \quad \quad c^3 = 27 \Rightarrow c = 3 \\
 \Rightarrow b \cdot c = b \cdot 3 = 18 \Rightarrow b = 6 \\
 \Rightarrow b + c = 6 + 3 = 9
 \end{array}$$

Cevap: E

$$\begin{array}{l}
 7. \quad a + a = \frac{b}{5} \Rightarrow 10a = b \\
 \quad a + b = 132 \Rightarrow a + 10a = 132 \\
 \quad \quad \quad 11a = 132 \\
 \quad \quad \quad \boxed{a = 12} \\
 \quad \quad \quad \boxed{b = 120}
 \end{array}$$

$$\begin{array}{l}
 a + c = \frac{b}{2} \Rightarrow 12 + c = \frac{120}{2} \\
 \quad \quad \quad 12 + c = 60 \\
 \quad \quad \quad \boxed{c = 48}
 \end{array}$$

$$\Rightarrow a + b + c = 12 + 120 + 48 = 180$$

Cevap: E

$$\begin{array}{l}
 8. \quad -/ \quad x + y = 22 \\
 \quad \quad \quad x + c = 18 \\
 \quad \quad \quad + \quad y + c = 36 \\
 \quad \quad \quad \hline
 \quad 2c = -22 + 18 + 36 = 32 \\
 \quad \quad \quad \Rightarrow c = 16 \\
 \quad \quad \quad \Rightarrow a + b - c = 22 - 16 = 6
 \end{array}$$

Cevap: B

TEST - 3 ÇÖZÜMLER

9. I. $b + b = 2c + 6$

$2b = 2c + 6$

$2b - 2c = 6$

$b - c = 3$

$\Rightarrow a + c = b + 2$

$a = b - c + 2$

$a = 3 + 2$

$a = 5$

$\Rightarrow \frac{b+a}{c} = \frac{11+5}{8} = \frac{16}{8} = 2$

II. $a \cdot c = 40$

$5c = 40$

$c = 8$

$\Rightarrow b - c = 3$

$b - 8 = 3$

$b = 11$

Cevap: D

10. I. $a + c = 5c$

$a = 4c$

$\Rightarrow a = 4c = 4 \cdot 7 = 28$

$\Rightarrow b + c = 21$

$b + 7 = 21$

$b = 14$

$\Rightarrow \frac{a+b}{c} = \frac{28+14}{7} = 6$

II. $a \cdot c = 196$

↓

$4c \cdot c = 196$

$4c^2 = 196$

$c^2 = 49$

$c = 7$

Cevap: B

11. I. $\Rightarrow \bullet + \bullet = \square$

$1 + 1 = \square$

$2 = \square$

$\Rightarrow \triangle + \triangle = \blacktriangle$

$4 + 4 = \blacktriangle$

$8 = \blacktriangle$

$\Rightarrow \bullet + \triangle = \boxplus$

$1 + 4 = \boxplus$

$5 = \boxplus$

$\Rightarrow \blacktriangle + \boxplus + \square = 8 + 5 + 2 = 15$

II. $\triangle \times \star = \star$

$\bullet \times \star = \star$

$\star \times \star = \star$

$\triangle \times \bullet = \triangle$

$\bullet \times \bullet = \bullet$

$\star \times \bullet = \star$

$\Rightarrow \triangle \times \triangle = 8 \square$

$\triangle^2 = 8 \cdot 2$

$\triangle = 4$

Cevap: D

12. I. $\# + \# = \odot$

$1 + 1 = \odot$

$2 = \odot$

$\Rightarrow \odot + \odot = \heartsuit$

$2 + 2 = \heartsuit$

$4 = \heartsuit$

$\Rightarrow \# + \heartsuit = \boxplus$

$1 + 4 = \boxplus$

$5 = \boxplus$

$\Rightarrow \# + \odot = \blacksquare$

$1 + 2 = \blacksquare$

$3 = \blacksquare$

$\Rightarrow \odot + \heartsuit = \bullet$

$2 + 4 = \bullet$

$6 = \bullet$

$\Rightarrow \frac{\bullet + \star - \boxplus}{\blacksquare} = \frac{6 + 8 - 5}{3} = \frac{9}{3} = 3$

Cevap: A

II. $\# \times \# = \#$

$\# = 1$

$\Rightarrow \heartsuit \times \odot = \star$

$4 \cdot 2 = \star$

$8 = \star$

TEST - 4 ÇÖZÜMLER

1. $a \blacksquare b = \frac{a+b}{4}$ (Kural)
- $16 \blacksquare 4 = \frac{16+4}{4} = \frac{20}{4} = 5 = A$
 - $20 \blacksquare 8 = \frac{20+8}{4} = \frac{28}{4} = 7 = B$
 - $24 \blacksquare 12 = \frac{24+12}{4} = \frac{36}{4} = 9 = C$
- $\Rightarrow A + B + C = 5 + 7 + 9 = 21$

Cevap: D

2. $a \bullet b = \sqrt{a \cdot b}$ (Kural)
- $8 \bullet 2 = \sqrt{8 \cdot 2} = 4 = K$
 - $12 \bullet 4 = \sqrt{12 \cdot 4} = 4\sqrt{3} = L$
 - $9 \bullet 3 = \sqrt{9 \cdot 3} = 3\sqrt{3} = M$
- $\Rightarrow \frac{M}{L} + K = \frac{3\sqrt{3}}{4\sqrt{3}} + 4 = \frac{3}{4} + 4 = \frac{19}{4}$

Cevap: E

3. I. $a \blacktriangle b = \frac{a+b}{a \cdot b}$ (Kural)
- $5 \blacktriangle 2 = \frac{5+2}{5 \cdot 2} = \frac{7}{10} = A$
- II. $a \star b = \frac{b-a}{b \cdot a}$ (Kural)
- $2 \star 3 = \frac{3-2}{3 \cdot 2} = \frac{1}{6} = B$
- $\Rightarrow A \cdot B = \frac{7}{10} \cdot \frac{1}{6} = \frac{7}{60}$

Cevap: B

4. I. $a \bullet b = \frac{a+b}{2}$ (Kural)
- $9 \bullet 21 = \frac{9+21}{2} = 15 = A$
- II. $a \blacktriangle b = \frac{a+b}{3}$ (Kural)
- $8 \blacktriangle 4 = \frac{8+4}{3} = \frac{12}{3} = 4 = B$
- $\Rightarrow A \cdot B = 15 \cdot 4 = 60$

Cevap: A

5. $(ab) \blacksquare (cd) = e + f$ ($ab + cd = ef$) (Kural)
- $19 \blacksquare 22 = 4 + 1 = 5 = A$ ($19 + 22 = 41$)
 - $17 \blacksquare 14 = 3 + 1 = 4 = B$ ($17 + 14 = 31$)
 - $23 \blacksquare 22 = 4 + 5 = 9 = C$ ($23 + 22 = 45$)
- $\Rightarrow A + B - C = 5 + 4 - 9 = 0$

Cevap: C

6. $a \bullet b = (a - b)^2$ (Kural)
- $4 \bullet 11 = (4 - 11)^2 = 49 = A$
 - $7 \bullet 9 = (7 - 9)^2 = 4 = B$
 - $10 \bullet 5 = (10 - 5)^2 = 25 = C$
- $\Rightarrow A \cdot B - C = 49 \cdot 4 - 25 = 196 - 25 = 171$

Cevap: D

7. $a \# b = a \cdot (b + 1)$ (Kural)
- $2 \# 7 = 2 \cdot (7 + 1) = 2 \cdot 8 = 16 = K$
 - $8 \# 5 = 8 \cdot (5 + 1) = 8 \cdot 6 = 48 = L$
- $\Rightarrow 2K - L = 2 \cdot 16 - 48 = 32 - 48 = -16$

Cevap: A

TEST - 4 ÇÖZÜMLER

8. I. $a \bullet \triangle = \frac{a}{3}$
 $\bullet 120 \bullet \triangle = \frac{120}{3} = 40 = A$

II. $a \bullet \diamond = \frac{a}{5}$
 $\bullet 60 \bullet \diamond = \frac{60}{5} = 12 = C$

III. $a \bullet \square = \frac{a}{4}$
 $\bullet 240 \bullet \square = \frac{240}{4} = 60 = B$
 $\Rightarrow \frac{B}{C} + A = \frac{60}{12} + 40 = 5 + 40 = 45$

Cevap: A

9. I. $a \blacksquare \star = 2.a + 2$
 $\bullet 13 \blacksquare \star = 2.13 + 2 = 28 = A$

II. $a \blacksquare \bullet = 3.a + 3$
 $\bullet 3 \blacksquare \bullet = 3.3 + 3 = 12 = B$

III. $a \blacksquare \blacktriangle = 4.a + 4$
 $\bullet 7 \blacksquare \blacktriangle = 4.7 + 4 = 32 = C$
 $\Rightarrow A - B + C = 28 - 12 + 32 = 48$

Cevap: D

10. I. $\# \bullet a = \frac{a}{2} - 2$
 $\bullet \# \bullet 24 = \frac{24}{2} - 2 = 10 = B$

II. $\blacktriangle \bullet a = \frac{a}{3} - 3$
 $\bullet \blacktriangle \bullet 12 = \frac{12}{3} - 3 = 1 = A$

III. $\blacksquare \bullet a = \frac{a}{4} - 4$
 $\bullet \blacksquare \bullet 60 = \frac{60}{4} - 4 = 11 = C$
 $\Rightarrow A + B + C = 1 + 10 + 11 = 22$

Cevap: C

11.

17	16	23	24
23	24	29	28
41	29	35	47
13	12	27	x

$\rightarrow 17 + 23 - 16 = 24$
 $\rightarrow 23 + 29 - 24 = 28$
 $\rightarrow 41 + 35 - 29 = 47$
 $\rightarrow 13 + 27 - 12 = 28 = x$

Cevap: D

12.

7	8	11	13
11	12	4	5
4	8	7	8
5	2	3	6
57	80	23	?

I. II. III. IV.

I. $(7.11) - (4.5) = 77 - 20 = 57$
 II. $(8.12) - (8.2) = 96 - 16 = 80$
 III. $(11.4) - (7.3) = 44 - 21 = 23$
 IV. $x = (13.5) - (8.6) = 65 - 48 = 17$

Cevap: B