

$$1. \quad i) \quad \bullet \quad \frac{3a+b}{b-3} = 4 \quad \Rightarrow \quad \begin{aligned} 3a+b &= 4b-12 \\ 3a+b-4b &= -12 \\ 3a-3b &= -12 \\ 3(a-b) &= -12 \\ a-b &= -4 \end{aligned}$$

$$ii) \quad \bullet \quad \frac{a+b}{a+2} = 3 \quad \Rightarrow \quad \begin{aligned} a+b &= 3a+6 \\ a-3a+b &= 6 \\ b-2a &= 6 \end{aligned}$$

i ve ii'den

$$\begin{array}{r} a-b = -4 \\ + \quad b-2a = 6 \\ \hline -a = 2 \\ a = -2 \end{array}$$

i'de

$$\begin{aligned} a-b &= -4 \\ -2-b &= -4 \\ -2+4 &= b \\ 2 &= b \end{aligned}$$

O halde  $a.b = (-2).2 = -4$  bulunur.

Cevap: A

$$2. \quad \frac{b}{a} = \frac{1}{3} \quad \Rightarrow \quad a = 3b$$

$$\frac{a+b}{a.c} = \frac{1}{6} \quad \Rightarrow \quad \begin{aligned} 6a+6b &= a.c \\ 6.(3b)+6b &= a.c \\ 18b+6b &= a.c \\ 24b &= a.c \\ 24. \frac{b}{a} &= c \\ 24. \frac{1}{3} &= c \\ 8 &= c \quad \text{bulunur.} \end{aligned}$$

Cevap: C

$$3. \quad i) \quad \begin{array}{r} x.y = 5 \\ + \quad y.z = 4 \\ \hline y(x+z) = 9 \end{array} \quad \begin{array}{l} ii) \quad y-x-z = 0 \\ y = x+z \end{array}$$

$$y.y = 9 \quad \Rightarrow \quad \begin{aligned} y^2 &= 9 \\ y &= 3 \quad \text{olur.} \end{aligned}$$

$$\begin{array}{ll} x.y = 5 & , \quad y.z = 4 \\ x.3 = 5 & \quad 3.z = 4 \\ x = \frac{5}{3} & \quad z = \frac{4}{3} \end{array}$$

O halde;

$$x.y.z = \frac{5}{3} \cdot 3 \cdot \frac{4}{3} = \frac{20}{3} \quad \text{bulunur.}$$

Cevap: E

4. Şekil-I

$$\begin{array}{r} -12+4 = A \\ -8 = A \\ 4+C = B \\ -8+B = 10 \\ B = 18 \end{array}$$

$$\bullet \quad \begin{aligned} 4+C &= 18 \\ C &= 14 \end{aligned}$$

$$\text{Şekil II'de} \quad \begin{array}{ll} (-5).(-2) = y & (-2).z = 2 \\ y = 10 & z = -1 \\ x = 10.2 = 20 \end{array}$$

$$\begin{aligned} \frac{A+B+C}{X-Y+2Z} &= \frac{-8+18+14}{20-10-2} \\ &= \frac{24}{8} = 3 \end{aligned}$$

Cevap: C

$$5. \quad i) \quad \frac{3a-b}{4} = c \quad \Rightarrow \quad 3a - b = 4c$$

$$ii) \quad \frac{4b+c}{3} = a \quad \Rightarrow \quad 4b + c = 3a$$

$$c = 3a - 4b$$

i ve ii'den c yerine denklem yazılır ise

$$3a - b = 4.(3a - 4b)$$

$$3a - b = 12a - 16b$$

$$15b = 9a$$

$$\frac{b}{a} = \frac{9}{15} = \frac{3}{5} \text{ bulunur.}$$

Cevap: D

$$6. \quad i) \quad \begin{array}{r} a + c = 16 \\ -1/ \quad a - b = 6 \\ \hline a + c = 16 \\ + \quad -a + b = -6 \\ \hline c + b = 10 \end{array}$$

$$ii) \quad \begin{array}{r} -1/ \quad c + b = 10 \\ 3b + c = 14 \\ \hline -c - b = -10 \\ + \quad 3b + c = 14 \\ \hline 2b = 4 \\ b = 2 \end{array}$$

$$\bullet \quad c + b = 10 \quad \Rightarrow \quad c + 2 = 10$$

$$c = 8$$

$$\bullet \quad a + c = 16 \quad \Rightarrow \quad a + 8 = 16$$

$$a = 8$$

O halde  $a.b.c = 8.2.8 = 128$  bulunur.

Cevap: E

$$7. \quad x + y^2 = z$$

$$y - z^2 = x$$

$$y - z^2 + y^2 = z$$

$$y^2 - z^2 = z - y$$

$$(y - z)(y + z) = z - y$$

$$y + z = \frac{z - y}{y - z} = -1 \text{ bulunur.}$$

Cevap: C

$$8. \quad \begin{array}{r} a + b = 17 \\ -1/ \quad a + c = 11 \\ \hline a + b = 17 \\ + \quad -a - c = -11 \\ \hline b - c = 6 \end{array} \quad \begin{array}{r} -1/ \quad b + c = 14 \\ \hline a + c = 11 \\ -b - c = -14 \\ + \quad a + c = 11 \\ \hline a - b = -3 \end{array}$$

O halde

$$\frac{b^2 - c^2}{a^2 - b^2} = \frac{(b - c).(b + c)}{(a - b).(a + b)} = \frac{6.14}{-3.17} = -\frac{28}{17}$$

Cevap: A

9. Küçük şişe hacmi x, Büyük şişe hacmi y olsun.

I. damacandadaki su şişelere doldurulduğunda

$$3x + 5y \text{ olur.}$$

II. damacandadaki su şişelere doldurulduğunda

$$6x + 4y \text{ olur.}$$

O halde iki damacandadaki su eşit olduğundan bu denklemler eşitlenir.

$$3x + 5y = 6x + 4y \quad \Rightarrow \quad y = 3x \text{ bulunur.}$$

III. damacandadaki su ise  $3x + 5y = 3x + 5.(3x)$

$$= 3x + 15x$$

$$= 18x$$

Yani bir damacandadaki su 18 küçük şişeye doldurulabilir.

Cevap: D

