

1. $2x = 3y = \frac{z}{6} = 6k$ olsun

$x = 3k$, $y = 2k$ ve $z = 36k$ olur.

$$z - y - x = \frac{93}{2}$$

$$36k - 2k - 3k = \frac{93}{2}$$

$$31k = \frac{93}{2} \Rightarrow k = \frac{3}{2} \text{ olur.}$$

O halde $y = 2k = 2 \cdot \frac{3}{2} = 3$ bulunur.

Cevap: C

2. $\frac{3.a}{3.b} = \frac{2.c}{2.d} = \frac{-e}{-f} = \frac{3}{5}$

$$\frac{3a + 2c - e}{3b + 2d - f} = \frac{3}{5}$$

$$\frac{54 - e}{75} = \frac{3}{5}$$

$$54 - e = 45$$

$$54 - 45 = e$$

$$9 = e \text{ bulunur.}$$

Cevap: E

3. $\frac{a}{5} = \frac{3}{b}$

$$a.b = 15$$

$$a.b.c = 60$$

$$15.c = 60$$

$$c = 4$$

Cevap: D

4. $x = 3y$ ve $y = \frac{z}{2}$

$$\begin{array}{ccc} \downarrow & \downarrow & \\ 3k & k & 2y = z \\ & & \downarrow \downarrow \\ & & k \quad 2k \end{array}$$

$$x = 3k$$

$$y = k$$

$$z = 2k \quad x < 0 \Rightarrow k = -1 \text{ alalım}$$

$$x = -3, \quad y = -1, \quad z = -2$$

$$y > z > x \text{ olur.}$$

Cevap: D

5. $\frac{x}{y} = 4 + x \Rightarrow x = 4y + x.y$

$$x - 4y = x.y$$

$$x - 4y = y + 3$$

$$x - 5y = 3$$

$$\begin{array}{cc} \downarrow & \downarrow \\ -2 & -1 \end{array}$$

$$x + y = -2 - 1$$

$$x + y = -3 \text{ bulunur.}$$

Cevap: A

6. Payları eşitleyelim

$$\frac{\binom{14}{3}}{5x} = \frac{\binom{6}{7}}{8y} = \frac{\binom{21}{2}}{7z}$$

$$\frac{42}{70x} = \frac{42}{48y} = \frac{42}{147z}$$

$$x, y, z \in \mathbb{Z}^+$$

$$70x = 48y = 147z$$

Buradan $y > x > z$ olduğu görülür. Lakin negatif tam sayılar olduğundan eşitsizlik yön değiştirir.

$$y < x < z$$

Cevap: B

$$7. \frac{x}{y} = \frac{2.3k}{7.3k} = \frac{6k}{21k}$$

$$\frac{x}{z} = \frac{6.k}{11.k} = \frac{6k}{11k}$$

$$\Rightarrow \frac{y}{z} = \frac{21k}{11k} = \frac{21}{11} \text{ bulunur.}$$

Cevap: E

$$8. \frac{a}{b} = \frac{4.6k}{5.6k} = \frac{24k}{30k}$$

$$\frac{b}{c} = \frac{6.5k}{7.5k} = \frac{30k}{35k}$$

$$\frac{c}{d} = \frac{5.7k}{9.7k} = \frac{35k}{63k}$$

$$a = 24k, \quad b = 30k, \quad c = 35k, \quad d = 63k$$

$$a + b + c + d = 304$$

$$24k + 30k + 35k + 63k = 304$$

$$152k = 304 \Rightarrow k = 2 \text{ olur.}$$

$$(d + b) - (c + a) = (63k + 30k) - (35k + 24k)$$

$$= 93k - 59k$$

$$= 34k = 34 \cdot 2 = 68 \text{ bulunur.}$$

Cevap: C

$$9. \frac{3.x}{3.a} = \frac{-4.y}{-4.b} = \frac{2.z}{2.c} = 3$$

$$\frac{3x - 4y + 2z}{3a - 4b + 2c} = 3$$

$$\frac{18}{3a + 2(-2b + c)} = 3$$

$$\frac{6}{3a + 2} = 3$$

$$3a + 2 = 6$$

$$3a = 4 \Rightarrow a = \frac{4}{3}$$

$$\frac{x}{a} = 3, \quad \frac{x}{\frac{4}{3}} = 3$$

$$x = \frac{4}{3} \cdot 3 = 4 \text{ bulunur.}$$

Cevap: B

$$10. \frac{a}{5} = \frac{4}{b} = \frac{c}{2} = k \text{ olsun}$$

$$a = 5k, \quad b = \frac{4}{k} \quad \text{ve} \quad c = 2k$$

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

$$5k + \frac{4}{k} - 2.2k = 4$$

$$5k^2 + 4 - 4k^2 = 4k$$

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

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

$$k - 2 = 0$$

$$k = 2 \text{ olur.}$$

$$a - c = 5k - 2k = 3k = 3 \cdot 2$$

$$= 6 \text{ bulunur.}$$

Cevap: C

$$11. mx = ny = tz = 2$$

$$x = \frac{2}{m}, \quad y = \frac{2}{n}, \quad z = \frac{2}{t}$$

$$\frac{6}{\frac{2}{m}} + \frac{4}{\frac{2}{n}} + \frac{2}{\frac{2}{t}} = 7$$

$$2/3m + 2n + t = 7$$

$$6m + 4n + 2t = 14 \text{ bulunur.}$$

Cevap: E

$$12. \frac{-3.a}{-3.b} = \frac{-4.m}{4.n} = \frac{2.s}{2.t} = \frac{2}{5}$$

$$\frac{-3a + 4m + 2s}{-3b + 4n + 2t} = \frac{2}{5}$$

$$\frac{-4 + 2s}{\frac{30}{6}} = \frac{2}{5}$$

$$-4 + 2s = 12$$

$$2s = 16$$

$$s = 8$$

Cevap: A

13. $3a = 2b = 5c = k$

$$a = \frac{k}{3}, \quad b = \frac{k}{2}, \quad c = \frac{k}{5}$$

$$\frac{1}{\frac{k}{3}} + \frac{1}{\frac{k}{2}} + \frac{1}{\frac{k}{5}} = \frac{1}{6}$$

$$\frac{3+2+5}{k} = \frac{1}{6}$$

$$\frac{10}{k} = \frac{1}{6}$$

$$k = 60$$

$$b = \frac{k}{2} = \frac{60}{2} = 30 \text{ bulunur.}$$

Cevap: D

14. $\frac{x \cdot y}{4} = \frac{x+y}{3} = \frac{2x-3y}{2} = k$

$$x \cdot y = 4k$$

3/ $x + y = 3k$

$$2x - 3y = 2k$$

$$3x + 3y = 9k$$

$$2x - 3y = 2k$$

$$5x = 11k$$

$$x = \frac{11k}{5} \text{ ve } \frac{11k}{5} + y = 3k$$

$$y = 3k - \frac{11k}{5}$$

$$y = \frac{4k}{5}$$

buradan $x \cdot y = 4k$

$$\frac{11k}{5} \cdot \frac{4k}{5} = 4k$$

$$11k = 25$$

$$k = \frac{25}{11}$$

O halde $x = \frac{11}{5} \cdot \frac{25}{11} = 5$

Cevap: C

15. $\frac{x-1}{2} = \frac{y+2}{3} = z-3 = k$

$$x-1 = 2k, \quad y+2 = 3k, \quad z-3 = k$$

$$x = 2k + 1, \quad y = 3k - 2, \quad z = k + 3$$

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

$$2k + 1 = 3k + 9$$

$$-8 = k$$

$$y = 3k - 2 = -24 - 2$$

$$y = -26$$

Cevap: A

16. i) $a + \frac{7}{c} = 16$

$$\frac{a \cdot c + 7}{c} = 16 \Rightarrow a \cdot c + 7 = 16c$$

ii) $c + \frac{7}{a} = 20$

$$a \cdot c + 7 = 20a$$

i ve ii'den

$$16c = 20a$$

$$4c = 5a$$

$$\downarrow \quad \downarrow$$

$$5k \quad 4k$$

O halde $\frac{a+c}{c-a} = \frac{4k+5k}{5k-4k} = \frac{9k}{k} = 9$ bulunur.

Cevap: B

$$17. i) \quad \frac{x+y}{y} = \frac{8}{3}$$

$$3x + 3y = 8y$$

$$3x = 5y$$

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

$$ii) \quad \frac{y+z}{y} = \frac{9}{5}$$

$$5y + 5z = 9y$$

$$5z = 4y$$

$$\frac{z}{y} = \frac{4}{5}$$

$$i \text{ ve } ii'den \quad \frac{x}{y} = \frac{5.5k}{3.5k} = \frac{25k}{15k} \quad \frac{z}{y} = \frac{4.3k}{5.3k} = \frac{12k}{15k}$$

$$x = 25k, \quad y = 15k, \quad z = 12k$$

$$\frac{z}{x} = \frac{12k}{25k} = \frac{12}{25}$$

Cevap: E

$$18. \quad \frac{a}{4} = \frac{b}{6} = \frac{c}{14} = k \text{ olsun}$$

$$a = 4k \quad b = 6k \quad \text{ve} \quad c = 14k$$

$$\frac{\sqrt{4a} + \sqrt{6b}}{\sqrt{14c}} = \frac{\sqrt{16k} + \sqrt{36k}}{\sqrt{196k}}$$

$$= \frac{4\sqrt{k} + 6\sqrt{k}}{14\sqrt{k}}$$

$$= \frac{10\sqrt{k}}{14\sqrt{k}} = \frac{5}{7} \text{ bulunur.}$$

Cevap: B

$$19. \quad \frac{a.(c+1)}{b-1} = k$$

$$\frac{12.(5+1)}{4-1} = k$$

$$\frac{12.6}{3} = k \Rightarrow k = 24$$

$$a = 6 \text{ ve } c = 11 \text{ iken } b = ?$$

$$\frac{6.(11+1)}{(b-1)} = 24$$

$$\frac{3}{b-1} = \frac{2}{24}$$

$$b-1 = 3$$

$$b = 4 \text{ olur.}$$

Cevap: B

$$20. \quad a < 0$$

$$a = 5b \Rightarrow \frac{a}{b} = \frac{5}{1}$$

$$b = \frac{c}{3} \Rightarrow \frac{c}{b} = \frac{3}{1}$$

$$a = 5k \quad b = k \quad c = 3k$$

$$b < c < a \text{ olur.}$$

$$a < 0 \text{ olduğundan}$$

$$b > c > a \text{ bulunur.}$$

Cevap: D