Week IV

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$$\frac{a}{b}, \frac{uzunluk}{uzunluk}, \frac{kilo}{kilo}, \cancel{\frac{a\breve{g}ırlık}{uzunluk}}$$

$$\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = k \text{ (orantı sabiti)} => \text{orantı}$$

$$\cancel{\frac{a}{b}}\times\cancel{\frac{c}{d}} => (a \times d) \times (b \times c)$$

$$\frac{b}{a} = \frac{d}{c} \qquad\qquad a : b : c = x : y : z$$

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

$$\frac{a}{d} = \frac{c}{d} = \frac{e}{f} = k \qquad\qquad \frac{a}{d} = \frac{c}{d} = \frac{e}{f} = 3k \qquad\qquad \frac{a}{d} = \frac{c}{d} = \frac{e}{f} = k^3$$

$$(k)\ (k)\ (k) \qquad\qquad (k)\ (k)\ (k)$$

$$\frac{a}{b} = k => a = b \times k$$

Problem 0.1 $-\ \frac{a+3b+2c}{2a-b+c} = 2$ **ise** $\frac{2a+3b}{2b-a} =$?

Sol.

$$a + 3b + 2c = 4a - 2b + 2c \qquad\qquad \frac{10k + 9k}{6k - 5k} = \frac{19k}{k} = 19$$
$$5b = 3a, a = 5k, b = 3k$$

□

Problem 0.2 $-\ \frac{a}{b} = \frac{2}{3}, \frac{b}{c} = \frac{4}{5}, a + b + c = 105$ **ise** $a =$?

Sol.

$$\frac{a}{b} = \frac{2}{3}, \frac{b}{c} = \frac{4}{5} \qquad\qquad \frac{a}{b} = \frac{8}{12}, \frac{b}{c} = \frac{12}{15}$$
$$(4) \qquad\qquad (3)$$

$$b = 12, c = 15, a = 8$$

□

Problem 0.3 $-\frac{x}{2} = \frac{y}{3} = \frac{z}{5}$ **ve** $x - 2y + 3z = 33$ **ise** $x + y + z =?$

Sol.

$$x = 2k \qquad\qquad 2k - 6k + 15k = 33$$
$$y = 3k \qquad\qquad\qquad 11k = 33$$
$$z = 5k \qquad\qquad\qquad k = 3$$

$$6 + 9 + 15 = 30$$

$\square$

Problem 0.4 $-\frac{x}{y} = \frac{y}{z} = \frac{z}{t}$, $\frac{x}{t} = 8$ **ise** $\frac{x}{z} =?$

Sol.

$$\frac{x}{y} \times \frac{y}{z} \times \frac{z}{t} = k^3 \qquad\qquad \frac{x}{t} = k^3 = 8 \qquad\qquad \frac{x}{y} \times \frac{y}{z} = k^2 = 4$$
$$(k) \quad (k) \quad (k) \qquad\qquad\qquad k = 2 \qquad\qquad\qquad (k) \quad (k)$$

$$\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = 2$$

$\square$

Problem 0.5 $-\frac{a+2b}{b} - \frac{c-2d}{d} - \frac{4e-f}{e} =?$

Sol.

$$a = 2b \qquad\qquad \frac{4b}{b} - \frac{2d - 2d}{d} - \frac{8f - f}{2f}$$
$$c = 2d \qquad\qquad\qquad (0) \qquad (7f \div 2f)$$
$$e = 2f$$

$$(4 - 7) \div 2 = 1 \div 2$$

$\square$

Problem 0.6 $-\frac{z}{y} = \frac{z}{t} = \frac{m}{n} = \frac{3}{5}$, $2x - z + 3m = 18$, $2y + 3n = 34$, $t =?$

Sol.

$$\frac{2x - z + 3m}{2y - t + 3n} = \frac{3}{5} \qquad\qquad 90 = 102 - 3t$$
$$\frac{18}{34 - t} = \frac{3}{5} \qquad\qquad 3t = 12$$
$$t = 4$$

$\square$

Problem 0.7 − $\frac{a}{2} = \frac{b}{3} = \frac{c}{4} = \frac{-2a+5b-xc}{3}$ işleminde $x =$?

Sol.

$$a = 2 \qquad -2a + 5b - xc = 3$$
$$b = 3 \qquad -4 + 15 - xc = 3$$
$$c = 4 \qquad xc = 8$$

$$x = 2$$

□