Zadatak 18. Razlika duljina odsječaka što ih pravac p odsijeca na koordinatnim osima iznosi 2, a površina trokuta što ga pravac p pritom zatvara s koordinatnim osima iznosi 12. Odredi jednadžbu pravca p.

Rješenje. **1)** $m - 2 = n$

$$m - n = 2 \implies m = n + 2$$
$$P = 12$$
$$\frac{|m \cdot n|}{2} = 12 \quad / \cdot 2$$
$$|(n+2) \cdot n| - 24 = 0 \qquad (1)$$
$$(n+2) \cdot n = 0 \implies n_1 = -2, \quad n_2 = 0$$

a) $n \in \langle -2, 0 \rangle$

Iz (1) $-n^2 - 2n - 24 = 0 \quad / \cdot (-1)$

$$n^2 + 2n + 24 = 0$$
$$n_{1,2} = \frac{-2 \pm \sqrt{4 - 96}}{2} = \frac{-2 \pm \sqrt{-92}}{2} \quad \text{(nema rješenja)}$$

b) $n \in \langle -\infty, -2 \rangle \cup \langle 0, \infty \rangle$

Iz (1) $n^2 + 2n - 24 = 0$

$$n_{1,2} = \frac{-2 \pm \sqrt{4 + 96}}{2} = \frac{-2 \pm 10}{2}$$
$$n_1 = -6 \implies m_1 = -4 \implies p_1 \ \ldots \ -\frac{x}{4} - \frac{y}{6} = 1$$
$$n_2 = 4 \implies m_2 = 6 \implies p_2 \ \ldots \ \frac{x}{6} + \frac{y}{4} = 1$$

2) $n - 2 = m$

$$n - m = 2 \implies n = m + 2$$
$$P = 12$$
$$\frac{|n \cdot m|}{2} = 12 \quad / \cdot 2$$
$$|(m+2) \cdot m| - 24 = 0 \qquad (2)$$
$$(m+2) \cdot m = 0 \implies m_1 = -2, \quad m_2 = 0$$

c) $m \in \langle -2, 0 \rangle$

Iz (2) $-m^2 - 2m - 24 = 0 \quad / \cdot (-1)$

$$m^2 + 2m + 24 = 0$$
$$m_{1,2} = \frac{-2 \pm \sqrt{4 - 96}}{2} = \frac{-2 \pm \sqrt{-92}}{2} \quad \text{(nema rješenja)}$$

d) $m \in \langle -\infty, -2\rangle \cup \langle 0, \infty\rangle$

Iz (2) $m^2 + 2m - 24 = 0$

$$m_{1,2} = \frac{-2 \pm \sqrt{4+96}}{2} = \frac{-2 \pm 10}{2}$$

$$m_1 = -6 \implies n_1 = -4 \implies p_1 \ \ldots \ -\frac{x}{6} - \frac{y}{4} = 1$$

$$m_2 = 4 \implies n_2 = 6 \implies p_2 \ \ldots \ \frac{x}{4} + \frac{y}{6} = 1$$