

Zadatak 13. Odredi jednadžbu pravca koji prolazi točkom $T(8, 6)$, a s koordinatnim osima zatvara trokut površine 12.

Rješenje.

$$T(8, 6), P = 12$$

$$P = \frac{|m \cdot n|}{2}, \quad 12 = \frac{|m \cdot n|}{2}, \quad |m| = \frac{24}{|n|}$$

$$\text{a) } m = \frac{24}{n}$$

$$\frac{x}{m} + \frac{y}{n} = 1$$

$$\frac{8}{\frac{24}{n}} + \frac{6}{n} = 1$$

$$\frac{8n}{24} + \frac{6}{n} = 1 \quad / \cdot 24n$$

$$8n^2 + 144 = 24n$$

$$8n^2 - 24n + 144 = 0$$

$$n^2 - 3n + 18 = 0$$

$$n_{1,2} = \frac{3 \pm \sqrt{9 - 72}}{2} \quad (\text{nema rješenja})$$

$$\text{b) } m = -\frac{24}{n}$$

$$\frac{x}{m} + \frac{y}{n} = 1$$

$$\frac{8}{-\frac{24}{n}} + \frac{6}{n} = 1$$

$$-\frac{8n}{24} + \frac{6}{n} = 1 \quad / \cdot (-24n)$$

$$8n^2 - 144 = -24n$$

$$8n^2 + 24n - 144 = 0$$

$$n^2 + 3n - 18 = 0$$

$$n_{1,2} = \frac{-3 \pm \sqrt{9 + 72}}{2} = \frac{-3 \pm 9}{2}$$

$$n_1 = \frac{-3 - 9}{2} = -6 \implies \frac{x}{4} + \frac{y}{-6} = 1, \quad 3x - 2y - 12 = 0$$

$$n_2 = \frac{-3 + 9}{2} = 3 \implies \frac{x}{-8} + \frac{y}{3} = 1, \quad 3x - 8y + 24 = 0$$