Zadatak 38. Kolika je površina trokuta što ga simetrala dužine $\overline{AB}$, $A(-4,3)$, $B(2,-1)$ tvori s koordinatnim osima?

Rješenje.

$$A(-4,3)$$
$$B(2,-1)$$
$$k_{AB} = \frac{y_B - y_A}{x_B - x_A} = \frac{-1-3}{2+4} = -\frac{4}{6} = -\frac{2}{3}$$
$$s_{AB} \perp AB \implies k_{s_{AB}} = -\frac{1}{k_{AB}} = \frac{3}{2}$$

P je polovište dužine AB:

$$P\left(\frac{x_A + x_B}{2}, \frac{y_A + y_B}{2}\right) = \left(\frac{-4+2}{2}, \frac{3-1}{2}\right) = (-1,1)$$
$$\{P\} \in s_{AB} \implies y - 1 = \frac{3}{2}(x+1)$$
$$y = \frac{3}{2}x + \frac{5}{2} \quad / \cdot 2$$
$$3x - 2y = -5 \quad / 5$$
$$\frac{x}{-\frac{5}{3}} + \frac{y}{\frac{5}{2}} = 1 \implies \boxed{m = -\frac{5}{3}}, \quad \boxed{n = \frac{5}{2}}$$
$$P_{\triangle} = \frac{|m \cdot n|}{2} = \frac{\left|-\frac{5}{3} \cdot \frac{5}{2}\right|}{2} \implies \boxed{P = \frac{25}{12}}$$