

Zadatak 28. Točka $B(5,0)$ jedan je vrh trokuta ABC , a pravci $y = x - 1$ i $y = -7x + 15$ dvije su težišnice tog trokuta. Odredi koordinate vrhova A i C .

Rješenje.

$$\begin{array}{ll}
 B(5,0) & x - 1 = -7x + 15 \\
 t_1 \dots y = x - 1 & 8x = 16 \\
 t_2 \dots y = -7x + 15 & x = 2 \\
 t_1 \cap t_2 = \{T\} & y = 2 - 1 \\
 & y = 1 \\
 & T(2,1)
 \end{array}$$

$$\text{Ako } A \in t_1 \implies A(x_1, x_1 - 1)$$

$$C \in t_2 \implies C(x_3, -7x_3 + 15)$$

$$x_T = \frac{x_1 + x_2 + x_3}{3} \implies 2 = \frac{x_1 + 5 + x_3}{3} \quad / \cdot 3$$

$$y_T = \frac{y_1 + y_2 + y_3}{3} \implies 1 = \frac{x_1 - 1 + 0 - 7x_3 + 15}{3} \quad / \cdot 3$$

$$6 = x_1 + 5 + x_3$$

$$3 = x_1 - 7x_3 + 14$$

$$\left. \begin{array}{l}
 x_1 + x_3 = 1 \\
 x_1 - 7x_3 = -11
 \end{array} \right\} -$$

$$8x_3 = 12$$

$$x_3 = \frac{12}{8}$$

$$y_3 = -7 \cdot \frac{3}{2} + 15$$

$$y_3 = \frac{9}{2}, \quad C\left(\frac{3}{2}, \frac{9}{2}\right)$$

$$x_1 + \frac{3}{2} = 1$$

$$x_1 = -\frac{1}{2}$$

$$y_1 = -\frac{1}{2} - 1$$

$$y_1 = -\frac{3}{2}, \quad A\left(-\frac{1}{2}, -\frac{3}{2}\right)$$