

Zadatak 6. Točka $C(1, 3)$ dijeli dužinu \overline{AB} u omjeru $\lambda = \frac{2}{3}$, a točka $D(3, 4)$ istu dužinu dijeli u omjeru $\frac{3}{2}$. Odredi koordinate točaka A i B .

Rješenje.

$$\overline{AB} \implies C(1, 3)$$

$$\lambda_1 = \frac{2}{3}$$

$$\overline{AB} \implies D(3, 4)$$

$$\lambda_2 = \frac{3}{2}$$

$$x_C = \frac{x_A + \lambda_1 x_B}{1 + \lambda_1}$$

$$y_C = \frac{y_A + \lambda_1 y_B}{1 + \lambda_1}$$

$$x_D = \frac{x_A + \lambda_2 x_B}{1 + \lambda_2}$$

$$y_D = \frac{y_A + \lambda_2 y_B}{1 + \lambda_2}$$

$$1 = \frac{x_A + \frac{2}{3}x_B}{1 + \frac{2}{3}} / \cdot \frac{5}{3}$$

$$3 = \frac{y_A + \frac{2}{3}y_B}{1 + \frac{2}{3}} / \cdot \frac{5}{3}$$

$$3 = \frac{x_A + \frac{3}{2}x_B}{1 + \frac{3}{2}} / \cdot \frac{5}{2}$$

$$4 = \frac{y_A + \frac{3}{2}y_B}{1 + \frac{3}{2}} / \cdot \frac{5}{2}$$

$$\frac{5}{3} = x_A + \frac{2}{3}x_B / \cdot (-6)$$

$$5 = y_A + \frac{2}{3}y_B$$

$$\frac{15}{2} = x_A + \frac{3}{2}x_B / \cdot 6$$

$$10 = y_A + \frac{3}{2}y_B / \cdot (-1)$$

$$-10 = -6x_A - 4x_B$$

$$5 = y_A + \frac{2}{3}y_B$$

$$45 = 6x_A + 9x_B$$

$$-10 = -y_A - \frac{3}{2}y_B$$

$$35 = 5x_B \implies x_B = 7$$

$$-5 = \frac{5}{6}y_B \implies y_B = 6$$

$$5 = 3x_A + 2 \cdot 7$$

$$5 = y_A + \frac{2}{3} \cdot 6$$

$$-3x_A = 9 \implies x_A = -3$$

$$-y_A = 4 - 5 \implies y_A = 1$$

$$A(-3, 1)$$

$$B(7, 6)$$