

Zadatak 5. Provjeri pripadaju li točke A , B i C jednom pravcu:

- 1) $A(-3, -4)$, $B(1, -1)$, $C(5, 2)$;
- 2) $A(1, 3)$, $B(-2, 5)$, $C(7, -1)$;
- 3) $A(-7, 14)$, $B(3, -2)$, $C(-2, 6)$.

Rješenje. 1) $A(-3, -4)$, $B(1, -1)$, $C(5, 2)$;

$$y - y_1 = \frac{y_2 - y_1}{x_2 - x_1}(x - x_1)$$

$$y + 4 = \frac{-1 + 4}{1 + 3}(x + 3)$$

$$y + 4 = \frac{3}{4}(x + 3)$$

$$y + 4 = \frac{3}{4}x + \frac{9}{4} \quad / \cdot 4$$

$$4y + 16 = 3x + 9$$

$$3x - 4y - 7 = 0$$

$$3 \cdot 5 - 4 \cdot 2 - 7 = 15 - 8 - 7 = 0 \implies C \in AB$$

2) $A(1, 3)$, $B(-2, 5)$, $C(7, -1)$;

$$y - y_1 = \frac{y_2 - y_1}{x_2 - x_1}(x - x_1)$$

$$y - 3 = \frac{5 - 3}{-2 - 1}(x - 1)$$

$$y - 3 = \frac{2}{-3}(x - 1)$$

$$y - 3 = -\frac{2}{3}x + \frac{2}{3} \quad / \cdot 3$$

$$3y - 9 = -2x + 2$$

$$2x + 3y - 11 = 0$$

$$2 \cdot 7 + 3 \cdot (-1) - 11 = 14 - 3 - 11 = 0 \implies C \in AB$$

3) $A(-7, 14)$, $B(3, -2)$, $C(-2, 6)$;

$$y - y_1 = \frac{y_2 - y_1}{x_2 - x_1}(x - x_1)$$

$$y - 14 = \frac{-2 - 14}{3 + 7}(x + 7)$$

$$y - 14 = \frac{-16}{10}(x + 7)$$

$$y - 14 = -\frac{8}{5}x - \frac{56}{5} \quad / \cdot 5$$

$$5y - 70 = -8x - 56$$

$$8x + 5y - 14 = 0$$

$$8 \cdot (-2) + 5 \cdot 6 - 14 = -16 + 30 - 14 = 0 \implies C \in AB$$