

Zadatak 34.

Točke $A(4, -3)$ i $B(1, 6)$ vrhovi su na hipotenuzi pravokutnog trokuta ABC . Odredi vrh C ako on leži na osi apscisa.

Rješenje.

$A(4, -3)$, $B(1, 6)$ i $C(x, 0)$

$$\overrightarrow{CA} = (4 - x)\vec{i} + (-3 - 0)\vec{j} = (4 - x)\vec{i} - 3\vec{j}$$

$$\overrightarrow{CB} = (1 - x)\vec{i} + (6 - 0)\vec{j} = (1 - x)\vec{i} + 6\vec{j}$$

$$\overrightarrow{CA} \cdot \overrightarrow{CB} = 0$$

$$(4 - x)(1 - x) - 3 \cdot 6 = 0$$

$$4 - 4x - x + x^2 - 18 = 0$$

$$x^2 - 5x - 14 = 0$$

$$x_{1,2} = \frac{5 \pm \sqrt{25 + 56}}{2} = \frac{5 \pm 9}{2}$$

$$x_1 = 7 \implies C_1(7, 0)$$

$$x_2 = -2 \implies C_2(-2, 0)$$