

Zadatak 8. Točke $A(3, 2)$, $B(1, -2)$ i $D(5, 1)$ tri su vrha paralelograma $ABCD$. Kolika je duljina dijagonale \overline{AC} ?

Rješenje.

$$\begin{aligned}A(3, 2), \\ B(1, -2), \\ D(5, 1), \\ C(x_C, y_C),\end{aligned}$$

$$|\overline{AC}| = ?$$

$$\overrightarrow{AB} = \overrightarrow{DC}$$

$$\begin{aligned}(1 - 3)\vec{i} + (-2 - 2)\vec{j} &= (x_C - 5)\vec{i} + (y_C - 1)\vec{j} \\ -2\vec{i} - 4\vec{j} &= (x_C - 5)\vec{i} + (y_C - 1)\vec{j}\end{aligned}$$

$$x_C - 5 = -2 \implies x_C = 3$$

$$y_C - 1 = -4 \implies y_C = -3$$

$$\implies C(3, -3)$$

$$\overrightarrow{AC} = (3 - 3)\vec{i} + (-3 - 2)\vec{j} = -5\vec{j}$$

$$|\overrightarrow{AC}| = \sqrt{0 + 5^2} = \sqrt{25} = 5$$