

Zadatak 7. Točke $A(-1, -1)$, $B(3, -2)$ i $C(5, 2)$ tri su uzastopna vrha paralelograma $ABCD$. Kolika je duljina dijagonale \overline{BD} ?

Rješenje.

$$A(-1, -1),$$

$$B(3, -2),$$

$$C(5, 2),$$

$$D(x_D, y_D),$$

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

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

$$(3 + 1)\vec{i} + (-2 + 1)\vec{j} = (5 - x_D)\vec{i} + (2 - y_D)\vec{j}$$

$$4\vec{i} - \vec{j} = (5 - x_D)\vec{i} + (2 - y_D)\vec{j}$$

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

$$2 - y_D = -1 \implies y_D = 3$$

$$\implies D(1, 3)$$

$$\overrightarrow{BD} = (1 - 3)\vec{i} + (3 + 2)\vec{j} = -2\vec{i} + 5\vec{j}$$

$$|\overrightarrow{BD}| = \sqrt{(-2)^2 + 5^2} = \sqrt{4 + 25} = \sqrt{29}$$