

**Zadatak 20.** Vektor  $\vec{AD}$  prikaži kao linearnu kombinaciju vektora  $\vec{AB}$  i  $\vec{AC}$  ako je  $A(-2, 1)$ ,  $B(-1, -1)$ ,  $C(1, 2)$  i  $D(1, 9)$ .

*Rješenje.*

$$\vec{AB} = (-1 + 2)\vec{i} + (-1 - 1)\vec{j} = \vec{i} - 2\vec{j}$$

$$\vec{AC} = (1 + 2)\vec{i} + (2 - 1)\vec{j} = 3\vec{i} + \vec{j}$$

$$\vec{AD} = (1 + 2)\vec{i} + (9 - 1)\vec{j} = 3\vec{i} + 8\vec{j}$$

$$\vec{AD} = \alpha\vec{AB} + \beta\vec{AC}$$

$$\alpha(\vec{i} - 2\vec{j}) + \beta(3\vec{i} + \vec{j}) = 3\vec{i} + 8\vec{j}$$

$$(\alpha + 3\beta)\vec{i} + (-2\alpha + \beta)\vec{j} = 3\vec{i} + 8\vec{j}$$

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$$\alpha + 3\beta = 3 \cdot 2$$

$$-2\alpha + \beta = 8$$

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$$2\alpha + 6\beta = 6$$

$$-2\alpha + \beta = 8$$

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$$7\beta = 14 \implies \beta = 2$$

$$\alpha + 6 = 3 \implies \alpha = -3$$

$$\vec{AD} = -3\vec{AB} + 2\vec{AC}$$