

Zadatak 22. Dani su vektori $\vec{a} = 3\vec{i} - \vec{j}$, $\vec{b} = \vec{i} - 2\vec{j}$, $\vec{c} = -\vec{i} + 7\vec{j}$. Vektor $\vec{v} = \vec{a} + \vec{b} + \vec{c}$ prikaži kao linearnu kombinaciju vektora \vec{a} i \vec{b} .

Rješenje.

$$\vec{a} = 3\vec{i} - \vec{j}$$

$$\vec{b} = \vec{i} - 2\vec{j}$$

$$\vec{c} = -\vec{i} + 7\vec{j}$$

$$\vec{v} = \alpha\vec{a} + \beta\vec{b}$$

$$\vec{v} = \vec{a} + \vec{b} + \vec{c}$$

$$\vec{v} = 3\vec{i} - \vec{j} + \vec{i} - 2\vec{j} - \vec{i} + 7\vec{j} = 3\vec{i} + 4\vec{j}$$

$$3\vec{i} + 4\vec{j} = \alpha(3\vec{i} - \vec{j}) + \beta(\vec{i} - 2\vec{j})$$

$$3\vec{i} + 4\vec{j} = (3\alpha + \beta)\vec{i} + (-\alpha - 2\beta)\vec{j}$$

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

$$-\alpha - 2\beta = 4$$

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

$$-\alpha - 2\beta = 4$$

$$5\alpha = 10 \implies \alpha = 2$$

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

$$\vec{v} = 2\vec{a} - 3\vec{b}$$