Zadatak 5. Odredi vektor $\vec{b}$ kolinearan s vektorom $\vec{a} = \vec{\imath} - 2\vec{\jmath}$ ako je $\vec{a} \cdot \vec{b} = -15$.

Rješenje. $\vec{b}$ kolinearan s $\vec{a} \implies \vec{b} \| \vec{a} \implies \sphericalangle(\vec{a}, \vec{b}) = 180°$.

$$\vec{b} = b_x \vec{\imath} + b_y \vec{\jmath}$$
$$\vec{a} \cdot \vec{b} = a_x b_x + a_y b_y$$
$$= 1 \cdot b_x + (-2) b_y$$
$$b_x - 2b_y = -15$$
$$b_x = 2b_y - 15$$

$$|\vec{a}| = \sqrt{1+4} = \sqrt{5}, \; \vec{b} = \lambda \vec{a}$$

$$\cos \sphericalangle(\vec{a}, \vec{b}) = -1 = \frac{\vec{a} \cdot \vec{b}}{|\vec{a}| \cdot |\vec{b}|}$$

$$-1 = \frac{-15}{\sqrt{5} \cdot |\lambda| \sqrt{5}}$$

$$-1 = \frac{-15}{5|\lambda|} / \cdot 5|\lambda|$$

$$-5|\lambda| = -15$$

$$|\lambda| = 3$$

$\implies \lambda = -3$ jer je $\sphericalangle(\vec{a}, \vec{b}) = 180°$.

$\vec{b} = -3(\vec{\imath} - 2\vec{\jmath}) = -3\vec{\imath} + 6\vec{\jmath}$.