Linearna zavisnost vektora

1. Neka su zadani vektori $\vec{a} = 4\vec{p} - \vec{q}$, $\vec{b} = -2\vec{p} - 4q$ i $\vec{c} = 4\vec{p} + 2\vec{q}$. Izraziti $\vec{b}$ kao linearnu kombinaciju vektora $\vec{a}$ i $\vec{c}$.

$$\vec{b} = \quad \vec{\square} \quad \_\_ \quad \vec{\square}$$

2. Odredite x tako da vektori $\vec{a} = -3\vec{m} + (x-1)\vec{n}$ i $\vec{b} = (3x+2)\vec{m} - 4\vec{n}$ budu kolinearni.

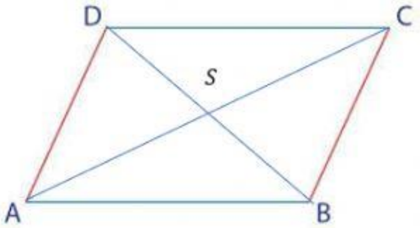
$$x_1 = \_\_\_\_\_$$

$$x_2 = \_\_\_\_\_$$

3. Ako je u $\Delta\, ABC$ $\vec{a} = \overrightarrow{BC} = 2\vec{m} - 3\vec{n}$, $\vec{b} = \overrightarrow{CA} = -\vec{m} + 2\vec{n}$. Izraziti $\overrightarrow{t_A} = \overrightarrow{AA_1}$ kao linearnu kombinaciju vektora $\vec{m}$ i $\vec{n}$.

$$\overrightarrow{t_a} = \_\_\_\vec{m} \;+ \_\_\_\vec{n}$$

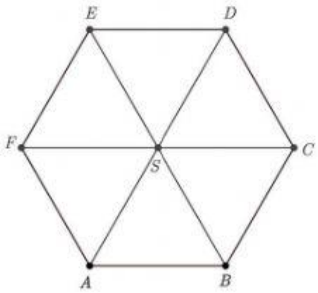
4. Zadan je paralelogram $ABCD$ i sjecište dijagonala S.
Neka je $\overrightarrow{BA} = \vec{a}$, $\overrightarrow{BC} = \vec{b}$, $\overrightarrow{AD} = 2\vec{i} + \vec{j}$, $\overrightarrow{CA} = \vec{e} = 3\vec{i} - 4\vec{j}$, $\overrightarrow{BD} = \vec{f}$.
Izraziti $\vec{a}$ i $\vec{f}$ kao linearnu kombinaciju vektora $\vec{i}$ i $\vec{j}$.



$$\vec{a} = \quad \vec{\square} \quad \_\_ \quad \vec{\square}$$

$$\vec{f} = \quad \vec{\square} \quad \_\_ \quad \vec{\square}$$

5. Zadan je pravilni šesterokut $ABCDEF$ i središte opisane kružnice S. Ako je $\overrightarrow{DC} = \vec{a}$, $\overrightarrow{FS} = \vec{b}$. Izraziti vektore $\overrightarrow{CA}$ i $\overrightarrow{AE}$ kao linearnu kombinaciju vektora $\vec{a}$ i $\vec{b}$.



$$\overrightarrow{CA} = \quad \vec{\square} \quad \_\_ \quad \vec{\square}$$

$$\overrightarrow{AE} = \quad \vec{\square} \quad \_\_ \quad \vec{\square}$$