Zadatak 19. Dane su točke $A(1,1)$, $B(2,2)$, $C(0,3)$ i $D(5,8)$. Prikaži vektor $\overrightarrow{AD}$ kao linearnu kombinaciju vektora $\overrightarrow{AB}$ i $\overrightarrow{AC}$.

Rješenje.

$$\overrightarrow{AB} = (2-1)\vec{\imath} + (2-1)\vec{\jmath} = \vec{\imath} + \vec{\jmath}$$
$$\overrightarrow{AC} = (0-1)\vec{\imath} + (3-1)\vec{\jmath} = -\vec{\imath} + 2\vec{\jmath}$$
$$\overrightarrow{AD} = (5-1)\vec{\imath} + (8-1)\vec{\jmath} = 4\vec{\imath} + 7\vec{\jmath}$$
$$\overrightarrow{AD} = \alpha\overrightarrow{AB} + \beta\overrightarrow{AC}$$
$$\alpha(\vec{\imath} + \vec{\jmath}) + \beta(-\vec{\imath} + 2\vec{\jmath}) = 4\vec{\imath} + 7\vec{\jmath}$$
$$(\alpha - \beta)\vec{\imath} + (\alpha + 2\beta)\vec{\jmath} = 4\vec{\imath} + 7\vec{\jmath}$$

$$\left.\begin{aligned} \alpha - \beta &= 4 \\ \alpha + 2\beta &= 7 \end{aligned}\right\} -$$

$$-3\beta = -3 \implies \beta = 1$$
$$\alpha - 1 = 4 \implies \alpha = 5$$
$$\overrightarrow{AD} = 5\overrightarrow{AB} + \overrightarrow{AC}$$