

Zadatak 17. Odredi najveći kut trokuta ABC ako je $A(-1, 3)$, $B(1, 1)$, $C(5, 3)$.

Rješenje.

$$\begin{aligned}\vec{AB} &= (1 + 1)\vec{i} + (1 - 3)\vec{j} \\ &= 2\vec{i} - 2\vec{j}\end{aligned}$$

$$\vec{BA} = -2\vec{i} + 2\vec{j}$$

$$\begin{aligned}\vec{AC} &= (5 + 1)\vec{i} + (3 - 3)\vec{j} \\ &= 6\vec{i}\end{aligned}$$

$$\begin{aligned}\vec{BC} &= (5 - 1)\vec{i} + (3 - 1)\vec{j} \\ &= 4\vec{i} + 2\vec{j}\end{aligned}$$

$$|\vec{AB}| = \sqrt{4 + 4} = \sqrt{8} = 2\sqrt{2}$$

$$|\vec{AC}| = \sqrt{36 + 0} = 6$$

$$|\vec{BC}| = \sqrt{16 + 4} = \sqrt{20} = 2\sqrt{5}$$

$$\begin{aligned}\cos \beta &= \frac{\vec{BA} \cdot \vec{BC}}{|\vec{BA}| \cdot |\vec{BC}|} \\ &= \frac{-2 \cdot 4 + 2 \cdot 2}{2\sqrt{2} \cdot 2\sqrt{5}} \\ &= \frac{-4}{4\sqrt{10}} \\ &= -\frac{1}{\sqrt{10}}\end{aligned}$$

$$\beta = 108^\circ 26'$$