

Zadatak 7. Odredi duljinu stranice a i kutove trokuta $\triangle ABC$ ako je $b = 7.5$ cm, $c = 6.2$ cm te $\beta - \gamma = 17^\circ$.

Rješenje.

$$b = 7.5\text{cm}$$

$$c = 6.2\text{cm}$$

$$\beta - \gamma = 17^\circ \implies \beta = 17^\circ + \gamma$$

$$a, \alpha, \beta, \gamma = ?$$

$$b \cdot \sin \gamma = c \cdot \sin \beta$$

$$7.5 \cdot \sin \gamma = 6.2 \cdot \sin(17^\circ + \gamma)$$

$$7.5 \cdot \sin \gamma = 6.2 \cdot (\sin 17^\circ \cos \gamma + \cos 17^\circ \sin \gamma)$$

$$7.5 \cdot \sin \gamma = 6.2 \cdot (0.29237 \cos \gamma + 0.9563 \sin \gamma)$$

$$1.57 \sin \gamma = 1.813 \cos \gamma$$

$$\text{tg } \gamma = 1.156$$

$$\gamma = 49^\circ 5' 15''$$

$$\beta = 17^\circ + \gamma = 17^\circ + 49^\circ 5' 15'' = 66^\circ 5' 15''$$

$$\alpha = 180^\circ - \beta - \gamma = 180^\circ - 66^\circ 5' 15'' - 49^\circ 5' 15'' = 64^\circ 49' 30''$$

$$a = \frac{c \sin \alpha}{\sin \gamma} = 7.42\text{cm.}$$