

Zadatak 9. Zbroj duljina dviju stranica trokuta jednak je 17.8 cm, a nasuprot tim stranicama nalaze se kutovi od 99° i 53° . Izračunaj duljinu treće stranice trokuta.

Rješenje.

$$a + b = 17.8\text{cm} \implies b = 17.8 - a$$

$$\alpha = 99^\circ$$

$$\beta = 53^\circ$$

$$a, b, c = ?$$

$$\gamma = 180^\circ - \alpha - \beta = 180^\circ - 99^\circ - 53^\circ = 28^\circ$$

$$\frac{a}{b} = \frac{\sin \alpha}{\sin \beta}$$

$$\frac{a}{17.8 - a} = \frac{\sin 99^\circ}{\sin 53^\circ}$$

$$\frac{a}{17.8 - a} = 1.23671979$$

$$a = 22.01361226 - 1.23671979a$$

$$2.23671979a = 22.01361226$$

$$a = 9.84\text{cm}$$

$$b = 17.8\text{cm} - 9.84\text{cm} = 7.96\text{cm}$$

$$c = \frac{a \cdot \sin \gamma}{\sin \alpha} = \frac{9.84 \cdot \sin 28^\circ}{\sin 99^\circ} = 4.86\text{cm}.$$