Zadatak 6. Odredi duljinu stranice c i kutove trokuta $\triangle ABC$ ako je $a = 16$ cm, $b = 11.2$ cm te $\alpha + \beta = 93^\circ$.

Rješenje.

$$a = 16\text{cm}$$
$$b = 11.2\text{cm}$$
$$\alpha + \beta = 93^\circ \implies \beta = 93^\circ - \alpha$$

$$c,\ \alpha,\ \beta,\ \gamma = ?$$
$$\frac{a}{b} = \frac{\sin\alpha}{\sin\beta}$$
$$\frac{16\text{cm}}{11.2\text{cm}} = \frac{\sin\alpha}{\sin(93^\circ - \alpha)}$$
$$16(\sin 93^\circ \cos\alpha - \cos 93^\circ \sin\alpha) = 11.2\sin\alpha$$
$$16(0.99862\cos\alpha + 0.05234^\circ \sin\alpha) = 11.2\sin\alpha$$
$$15.97792\cos\alpha = 10.36256\sin\alpha$$
$$\operatorname{tg}\alpha = 1.541889$$
$$\alpha = 57^\circ 2' \approx 57^\circ$$
$$\beta = 93^\circ - \alpha = 93^\circ - 57^\circ = 36^\circ$$
$$\gamma = 180^\circ - \alpha - \beta = 180^\circ - 57^\circ - 36^\circ = 87^\circ$$
$$c = \frac{a \cdot \sin\gamma}{\sin\alpha} = \frac{16 \cdot \sin 87^\circ}{\sin 57^\circ} = 19\text{cm}.$$