Zadatak 11. Razlika duljina dviju stranica trokuta jednaka je 34 cm, a nasuprot tim stranicama nalaze se kutovi od 108° i 28°. Kolike su duljine stranica tog trokuta?

Rješenje.

$a - b = 34\text{cm} \implies a = b + 34\text{cm}$

$\alpha = 108^\circ$

$\beta = 28^\circ$

$a,\ b,\ c = ?$

$\gamma = 180^\circ - \alpha - \beta = 180^\circ - 108^\circ - 28^\circ = 44^\circ$

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

$$\frac{b+34}{b} = \frac{\sin 108^\circ}{\sin 28^\circ}$$

$$\frac{b+34}{b} = 2.025802182$$

$$1.025802182b = 34$$

$$b = 33.14\text{cm}$$

$$a = 33.14\text{cm} + 34\text{cm} = 97.14\text{cm}$$

$$c = \frac{a \cdot \sin\gamma}{\sin\alpha} = \frac{67.14 \cdot \sin 44^\circ}{\sin 108^\circ} = 49.04\text{cm}.$$

67.14 cm, 33.14 cm, 49.04 cm.