Zadatak 14. Opseg trokuta jednak je 30 cm, a njegovi su unutarnji kutovi u omjeru $5 : 7 : 8$. Kolike su duljine stranica trokuta?

Rješenje.

$o = 30\text{cm}$

$\alpha : \beta : \gamma = 5 : 7 : 8$

$a,\ b,\ c = ?$

$\alpha + \beta + \gamma = 5x + 7x + 8x = 20x = 180^\circ \implies x = 9^\circ$

$\alpha = 45^\circ, \quad \beta = 63^\circ, \quad \gamma = 72^\circ$

$a : b : c = \sin\alpha : \sin\beta : \sin\gamma$

$a : b : c = \sin 45^\circ : \sin 63^\circ : \sin 72^\circ$

$a : b : c = 0.70711 : 0.89101 : 0.95106$

$a = 0.70711x$

$b = 0.89101x$

$c = 0.95106x$

$30\text{cm} = a + b + c = 0.70711x + 0.90631x + 0.89101x = 2.54918x$

$x = 11.76851\text{cm}$

$a = 8.32\text{cm}, \quad b = 10.49\text{cm}, \quad c = 11.19\text{cm}.$