

**Zadatak 7.** Površina paralelograma jednaka je  $14.8 \text{ cm}^2$ , a duljine dijagonala jednake su  $5 \text{ cm}$  i  $8 \text{ cm}$ . Kolike su duljine stranica i koliki su unutarnji kutovi paralelograma?

**Rješenje.**

$$P = 14.8 \text{ cm}^2$$

$$e = 5 \text{ cm}$$

$$f = 8 \text{ cm}$$

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

$$P = \frac{1}{2}ef \sin \varphi \implies \sin \varphi = \frac{2P}{ef} \implies \varphi = 47^\circ 44'$$

$$\varphi' = 180^\circ - \varphi = 132^\circ 16'$$

iz  $\triangle BCO$  imamo

$$b^2 = \left(\frac{e}{2}\right)^2 + \left(\frac{f}{2}\right)^2 - 2 \cdot \frac{e}{2} \cdot \frac{f}{2} \cdot \cos \varphi$$

$$b = 2.97 \text{ cm}$$

$$a^2 = \left(\frac{e}{2}\right)^2 + \left(\frac{f}{2}\right)^2 - 2 \cdot \frac{e}{2} \cdot \frac{f}{2} \cdot \cos \varphi'$$

$$a = 5.98 \text{ cm}$$

$$\cos \alpha = \frac{a^2 + b^2 - f^2}{2ab} \implies \alpha = 56^\circ 26'$$

$$\beta = 180^\circ - \alpha \implies \beta = 123^\circ 34'$$

