Zadatak 23.   U jednakokračnom trapezu zadane su osnovice a i c te krak b. Koliki je polumjer trapezu opisane kružnice?

Rješenje.

a, b, c

$$\overline{}$$

$R = ?$

$$\cos\alpha = \frac{\dfrac{a-c}{2}}{b} = \frac{a-c}{2b}$$

po Ptolomejevom poučku o tetivnom četverokutu imamo:

$$f^2 = ac + b^2 \implies f = \sqrt{ac + b^2}$$

$$R = \frac{f}{2\sin\alpha}$$

$$\sin\alpha = \sqrt{1 - \left(\frac{a-c}{2b}\right)^2} = \sqrt{\frac{4b^2 - (a-c)^2}{4b^2}} = \frac{1}{2b}\sqrt{4b^2 - (a-c)^2}$$

$$R = \frac{\sqrt{ac + b^2}}{\dfrac{1}{2b}\sqrt{4b^2 - (a-c)^2}} = \frac{b\sqrt{ac + b^2}}{\sqrt{4b^2 - (a-c)^2}}.$$