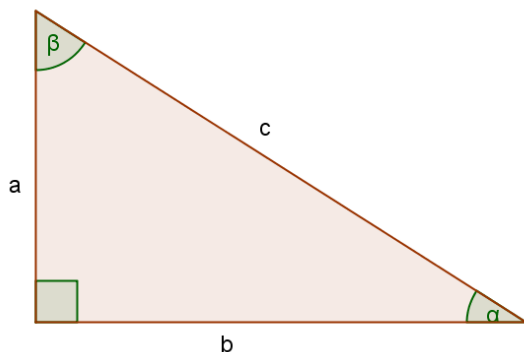


Ponavljanje za pismeni ispit – trigonometrija pravokutnog trokuta

1. Izračunaj kutove, opseg i površinu pravokutnog trokuta u kojem je duljina jedne katete $b = 34$, a hipotenuze $c = 50$.



$$\cos \alpha = \frac{b}{c} = \frac{34}{50}$$

$$\alpha = 47^{\circ}9'23''$$

$$\beta = 90^{\circ} - \alpha = 89^{\circ}59'60'' - 47^{\circ}9'23''$$

$$\beta = 42^{\circ}50'37''$$

$$a^2 = c^2 - b^2$$

$$a = \sqrt{c^2 - b^2} = \sqrt{50^2 - 34^2} = \sqrt{2500 - 1156} = \sqrt{1344}$$

$$a = 36.66$$

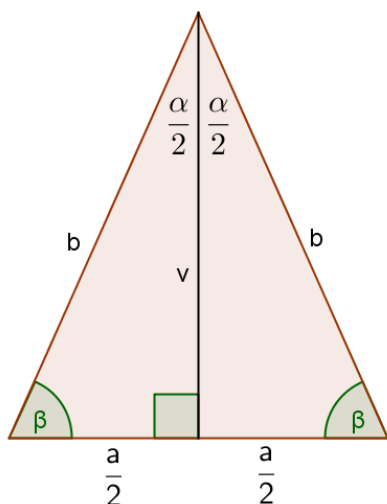
$$O = a + b + c = 36.66 + 34 + 50$$

$$O = 120.66$$

$$P = \frac{a \cdot b}{2} = \frac{36.66 \cdot 34}{2}$$

$$P = 628.32$$

2. Izračunaj opseg i površinu jednakokravnog trokuta osnovice $a = 58$ cm i kuta nasuprot osnovice $\alpha = 76^{\circ}16'$.



$$\sin \frac{\alpha}{2} = \frac{\frac{a}{2}}{b} = \frac{a}{2b}$$

$$2b = \frac{a}{\sin \frac{\alpha}{2}} = \frac{58}{\sin 38^{\circ}8'} = 93.93$$

$$b = 46.96 \text{ cm}$$

$$\operatorname{tg} \frac{\alpha}{2} = \frac{\frac{a}{2}}{v} = \frac{a}{2v}$$

$$2v = \frac{a}{\operatorname{tg} \frac{\alpha}{2}} = \frac{58}{\operatorname{tg} 38^\circ 8'} = 73.88$$

$$v = 36.94 \text{ cm}$$

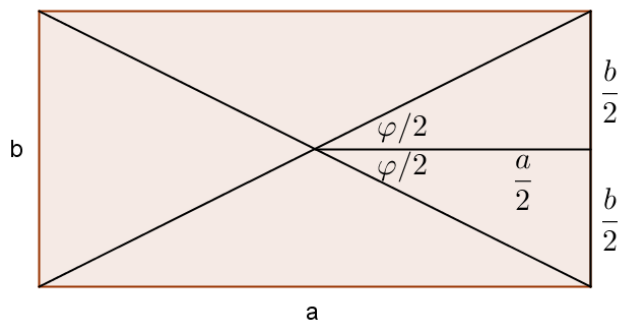
$$O = a + 2b = 58 + 93.92$$

$$O = 115.92 \text{ cm}$$

$$P = \frac{a \cdot v}{2} = \frac{58 \cdot 36.94}{2}$$

$$P = 1071.26 \text{ cm}^2$$

3. Izračunaj površinu pravokutnika s dužjom stranicom $a = 14.3 \text{ cm}$ i kutom među dijagonalama $\varphi = 23^\circ 16'$.



$$\operatorname{tg} \frac{\varphi}{2} = \frac{\frac{b}{2}}{\frac{a}{2}} = \frac{b}{a}$$

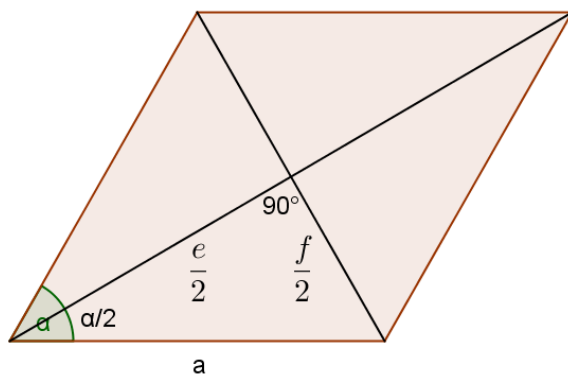
$$b = a \cdot \operatorname{tg} \frac{\varphi}{2} = 14.3 \cdot \operatorname{tg} 11^\circ 38'$$

$$b = 2.94 \text{ cm}$$

$$P = a \cdot b = 14.3 \cdot 2.94$$

$$P = 42.04 \text{ cm}^2$$

4. Izračunaj šiljasti kut, stranicu i površinu romba čije su dijagonale duge 13 cm i 9.12 cm.



$$\operatorname{tg} \frac{\alpha}{2} = \frac{\frac{f}{2}}{\frac{e}{2}} = \frac{f}{e} = \frac{9.12}{13} = 0.70154$$

$$\frac{\alpha}{2} = 35^{\circ}3'$$

$$\alpha = 70^{\circ}6'$$

$$a^2 = \left(\frac{e}{2}\right)^2 + \left(\frac{f}{2}\right)^2$$

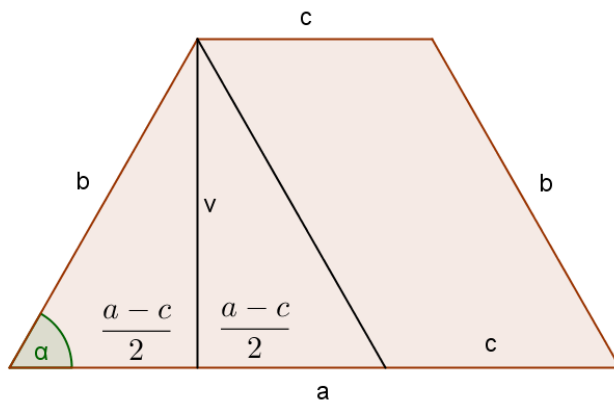
$$a = \sqrt{\left(\frac{e}{2}\right)^2 + \left(\frac{f}{2}\right)^2} = \sqrt{6.5^2 + 4.56^2} = \sqrt{42.25 + 20.7936} = \sqrt{63.0436}$$

$$a = 7.94 \text{ cm}$$

$$P = \frac{e \cdot f}{2} = \frac{13 \cdot 9.12}{2}$$

$$P = 59.28 \text{ cm}^2$$

5. Izračunaj površinu jednakokravnog trapeza s osnovicama duljine 19 i 13 cm, ako krak trapeza s osnovicom zatvara kut $\alpha = 67^{\circ}28'$.



$$\operatorname{tg} \alpha = \frac{v}{\frac{a-c}{2}}$$

$$v = \frac{a-c}{2} \cdot \operatorname{tg} \alpha = 3 \cdot \operatorname{tg} 67^{\circ}28'$$

$$v = 7.23 \text{ cm}$$

$$P = \frac{a+c}{2} \cdot v = \frac{19+13}{2} \cdot 7.23$$

$$P = 115.68 \text{ cm}^2$$