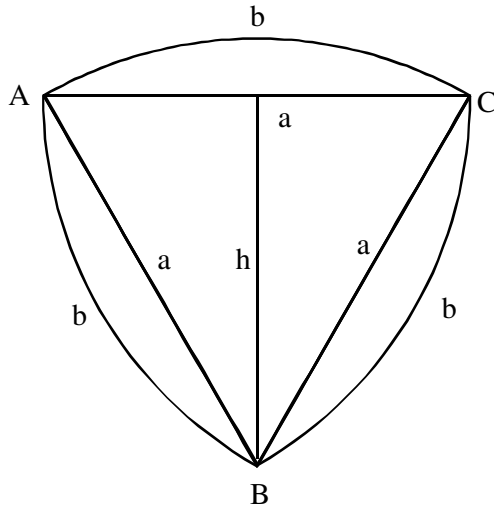


1.



Berechne den Inhalt und den Umfang der äußeren (von 3 Kreisbögen begrenzten) Figur!

Lösung zu S.22/28b :

$$U = 3b = 3 \cdot \frac{60^\circ a \pi}{180^\circ} = a\pi;$$

$$\left(\frac{a}{2}\right)^2 + h^2 = a^2 \Rightarrow h = \sqrt{a^2 - \frac{a^2}{4}} = \frac{\sqrt{3}}{2}a;$$

$$A_{\Delta ABC} = \frac{1}{2}a \cdot h = \frac{1}{2}a \cdot \frac{\sqrt{3}}{2}a = \frac{\sqrt{3}}{4}a^2;$$

$$A_{\text{Sektor}} = \frac{60^\circ \cdot a^2 \pi}{360^\circ} = \frac{1}{6}a^2 \pi;$$

$$A_{\text{Sichel}} = A_{\text{Sektor}} - A_{\Delta ABC} = \frac{1}{6}a^2 \pi - \frac{\sqrt{3}}{4}a^2 = \frac{2\pi - 3\sqrt{3}}{12}a^2;$$

$$A = A_{\Delta ABC} + 3 \cdot A_{\text{Sichel}} = \frac{\sqrt{3}}{4}a^2 + 3 \cdot \frac{2\pi - 3\sqrt{3}}{12}a^2$$

$$= \frac{3\sqrt{3} + 6\pi - 9\sqrt{3}}{12}a^2 = \frac{6\pi - 6\sqrt{3}}{12}a^2 = \frac{\pi - \sqrt{3}}{2}a^2 \approx 0,70a^2;$$