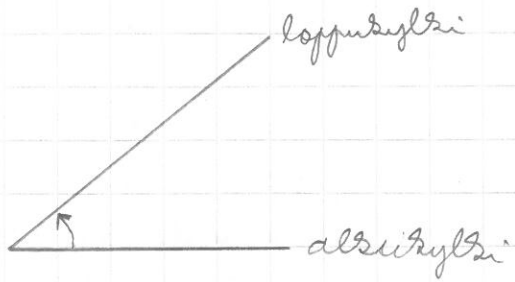
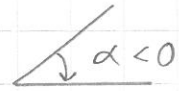
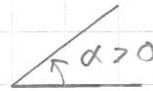


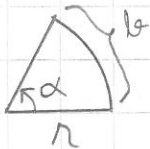
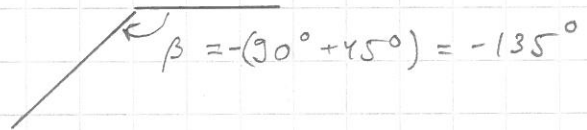
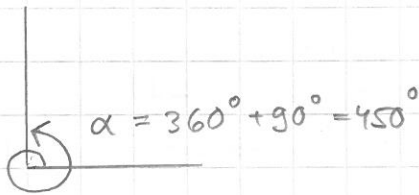
1. Suunnatun kulman ja radiaani



kiertosuunta:

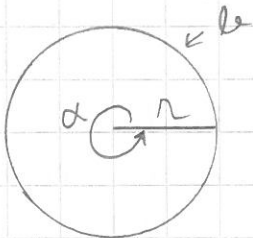


Esim.



$$\alpha = \frac{l}{r} \quad (\text{rad, radiaani})$$

Huom. Kulman yksikkö radiaani on "yksikötön yksikkö":
 $\text{rad} = \frac{\text{m}}{\text{m}} = 1$. Yksikkö voidaan merkitä tai jättää pois
 (esim. $\alpha = 5 = 5 \text{ rad}$)



$$\alpha = \frac{l}{r} = \frac{2\pi r}{r} = 2\pi \quad \Rightarrow \quad \underline{2\pi \text{ rad} = 360^\circ} \quad 1:2$$

$$\Rightarrow \quad \boxed{\pi \text{ rad} = 180^\circ}$$

Esim. $30^\circ = 30^\circ \cdot \frac{\pi}{180^\circ} = \frac{\pi}{6}$

$$\frac{2\pi}{3} = \frac{2\pi}{3} \cdot \frac{180^\circ}{\pi} = 120^\circ \quad \left(\frac{2\pi}{3} = \frac{2 \cdot 180^\circ}{3} = 120^\circ \right)$$

$$45^\circ = 45^\circ \cdot \frac{\pi}{180^\circ} = \frac{\pi}{4}$$

$$1 = 1 \cdot \frac{180^\circ}{\pi} \approx 57.3^\circ$$