

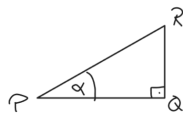
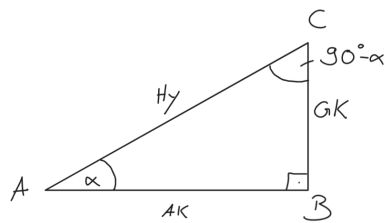
Mitschrieb
Mathematik 1
Vorlesung vom 10.10.2023

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1 - zu Seite 33

Infos vorraus



$AC \triangleq \text{Vector}$
 $|AC| \triangleq \text{Stecke}$
 $||AC|| \triangleq \text{Länge}$

$$\sin \alpha = \frac{Gk}{Hy} = \frac{||BC||}{||AC||} = \frac{||CB||}{||CA||}$$

$$\cos \alpha = \frac{Ak}{Hy} = \frac{||AB||}{||AC||}$$

$$\tan \alpha = \frac{Gk}{Ak} = \frac{\sin \alpha}{\cos \alpha}$$

$$\cot \alpha = \frac{\cos \alpha}{\sin \alpha}$$

$$\sin(90 - \alpha) = \frac{||AB||}{||AC||} = \cos \alpha$$

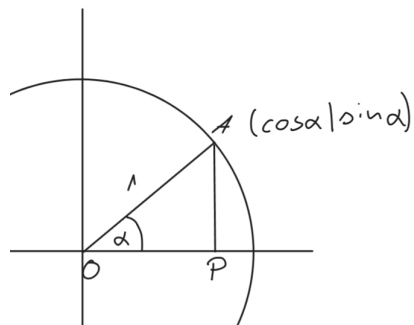
Zwei Dreiecke sind ähnlich wenn deren Winkel gleich gross sind.

$$\Delta ABC \sim \Delta PQR \Rightarrow \frac{||AC||}{||PR||} = \frac{||BC||}{||QR||} = \frac{||AB||}{||PQ||}$$

SATZ DES THALES!!!

Positionen und Gradmass zu Bogenmass

Tabelle mit Grad zu Bogenmass



$$360^\circ \triangleq 2\pi$$

$$180^\circ \triangleq \pi$$

$$90^\circ \triangleq \frac{\pi}{2}$$

$$60^\circ \triangleq \frac{\pi}{3}$$

$$45^\circ \triangleq \frac{\pi}{4}$$

$$30^\circ \triangleq \frac{\pi}{6}$$

$$\cos(-\alpha) = \cos \alpha$$

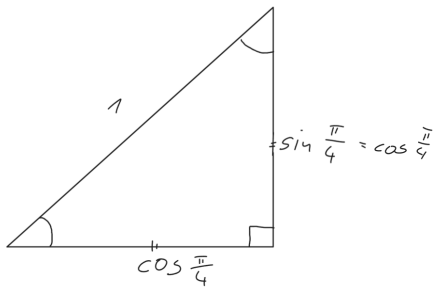
$$\sin(-\alpha) = -\sin \alpha$$

$$\sin(90 - \alpha) = \cos \alpha$$

$$\cos(90 - \alpha) = \sin \alpha$$

$$\sin^2 \alpha + \cos^2 \alpha = 1$$

Herleitung von $\sin \frac{\pi}{4}$



$$\sin^2 \frac{\pi}{4} + \cos^2 \frac{\pi}{4} = 1$$

$$\Rightarrow 2 \sin^2 \frac{\pi}{4} = 1$$

$$\Rightarrow \sin^2 \frac{\pi}{4} = \frac{1}{2}$$

$$\Rightarrow \sin \frac{\pi}{4} = \sqrt{\frac{1}{2}}$$