Trigonometrische Funktionen

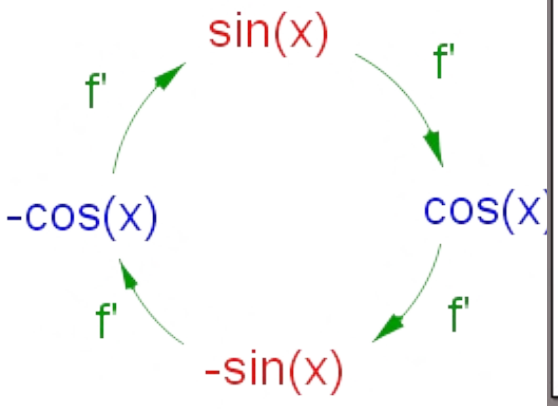
Trigonometrische Zusammenhänge

$$sin(\alpha) = \frac{Gegenkathete}{Hypotenuse}$$

$$cos(\alpha) = \frac{Ankathete}{Hypotenuse}$$

$$tan(\alpha) = \frac{Gegenkathete}{Ankathete}$$

Ableitungen



Winkel (Grad)	0°	30°	45°	60°	90°
Winkel (Bogenmaß)	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$
sin	$0 = \frac{\sqrt{0}}{2}$	$\frac{1}{2} = \frac{\sqrt{1}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	$1 = \frac{\sqrt{4}}{2}$
cos	$1 = \frac{\sqrt{4}}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2} = \frac{\sqrt{1}}{2}$	$0 = \frac{\sqrt{0}}{2}$
tan	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	–

Trigonometrische Beziehungen

$\sin^2\alpha + \cos^2\alpha = 1$		$\tan\alpha$	$= \sin\alpha / \cos\alpha$
$\sec\alpha$	$= 1/\cos\alpha$	$\operatorname{cosec}\alpha$	$= 1/\sin\alpha$
$\cot\alpha$	$= 1/\tan\alpha = \cos\alpha/\sin\alpha$		
$\sec^2\alpha$	$= 1 + \tan^2\alpha$	$\operatorname{cosec}^2\alpha$	$= 1 + \cot^2\alpha$
$\sin(\alpha+\beta)$	$= \sin\alpha\cos\beta + \cos\alpha\sin\beta$		
$\cos(\alpha+\beta)$	$= \cos\alpha\cos\beta - \sin\alpha\sin\beta$		
$\sin(\alpha-\beta)$	$= \sin\alpha\cos\beta - \cos\alpha\sin\beta$		
$\cos(\alpha-\beta)$	$= \cos\alpha\cos\beta + \sin\alpha\sin\beta$		
$\sin 2\alpha$	$= 2\sin\alpha\cos\alpha$	$\cos 2\alpha$	$= \cos^2\alpha - \sin^2\alpha$
$\sin\alpha + \sin\beta$	$= 2\sin\frac{1}{2}(\alpha+\beta)\cos\frac{1}{2}(\alpha-\beta)$		
$\cos\alpha + \cos\beta$	$= 2\cos\frac{1}{2}(\alpha+\beta)\cos\frac{1}{2}(\alpha-\beta)$