

Utantillapp för $\sin x$ och $\cos x$

Sinus och cosinus för speciella vinklar

x (grader)	0°	30°	45°	60°	90°	120°	135°	150°	180°
x (radianer)	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$	$\frac{3\pi}{4}$	$\frac{5\pi}{6}$	π
$\sin x$	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
$\cos x$	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0	$-\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	$-\frac{\sqrt{3}}{2}$	-1

Elementära räkneregler

$$\sin^2 x + \cos^2 x = 1 \quad (\text{trigonometriska ettan})$$

$$\cos(x + 2\pi) = \cos x \quad \sin(x + 2\pi) = \sin x$$

$$\cos(\pi - x) = -\cos x \quad \sin(\pi - x) = \sin x$$

$$\cos(-x) = \cos x \quad \sin(-x) = -\sin x$$

$$\cos\left(\frac{\pi}{2} - x\right) = \sin x \quad \sin\left(\frac{\pi}{2} - x\right) = \cos x$$

Plugga in

$$\sin(2x) = 2 \sin x \cos x$$

$$\cos(2x) = \cos^2 x - \sin^2 x$$

$$\sin(x + y) = \sin x \cos y + \cos x \sin y$$

$$\cos(x + y) = \cos x \cos y - \sin x \sin y$$

Härled vid behov

$$\begin{aligned} \cos(2x) &= 2 \cos^2 x - 1 \\ &= 1 - 2 \sin^2 x \end{aligned}$$

$$\sin(x - y) = \sin x \cos y - \cos x \sin y$$

$$\cos(x - y) = \cos x \cos y + \sin x \sin y$$

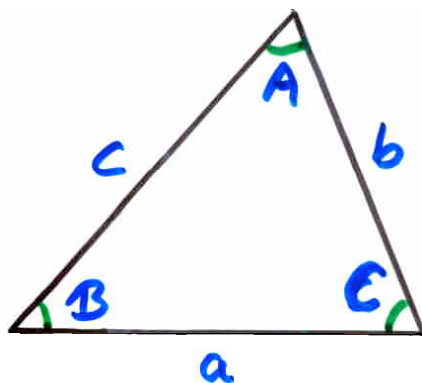
$$\sin^2 x = \frac{1}{2} (1 - \cos(2x))$$

$$\cos^2 x = \frac{1}{2} (1 + \cos(2x))$$

$$\sin x \cos y = \frac{1}{2} (\sin(x + y) + \sin(x - y))$$

$$\sin x \sin y = \frac{1}{2} (\cos(x - y) - \cos(x + y))$$

$$\cos x \cos y = \frac{1}{2} (\cos(x - y) + \cos(x + y))$$



Sinussatsen

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

Cosinussatsen

$$c^2 = a^2 + b^2 - 2ab \cos C$$

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$a^2 = b^2 + c^2 - 2bc \cos A$$