

Formulaire trigonométrique

Pour tout x réel on a : $\cos^2 x + \sin^2 x = 1$; $\cos(x+2k\pi) = \cos x$ et $\sin(x+2k\pi) = \sin x$

Pour tout $x \neq \frac{\pi}{2} + k\pi (k \in \mathbb{Z})$ on a : $\operatorname{tg} x = \frac{\sin x}{\cos x}$ et $1 + \operatorname{tg}^2 x = \frac{1}{\cos^2 x}$

Pour tout $x \neq k\pi (k \in \mathbb{Z})$ on a : $\operatorname{cotg} x = \frac{\cos x}{\sin x}$ et $1 + \operatorname{cotg}^2 x = \frac{1}{\sin^2 x}$

$\cos(-x) = \cos x$	$\cos(\pi - x) = -\cos x$	$\cos(\pi + x) = -\cos x$	$\cos(\frac{\pi}{2} - x) = \sin x$	$\cos(\frac{\pi}{2} + x) = -\sin x$
$\sin(-x) = -\sin x$	$\sin(\pi - x) = \sin x$	$\sin(\pi + x) = -\sin x$	$\sin(\frac{\pi}{2} - x) = \cos x$	$\sin(\frac{\pi}{2} + x) = \cos x$
$\operatorname{tg}(-x) = -\operatorname{tg} x$	$\operatorname{tg}(\pi - x) = -\operatorname{tg} x$	$\operatorname{tg}(\pi + x) = \operatorname{tg} x$	$\operatorname{tg}(\frac{\pi}{2} - x) = \operatorname{cotg} x$	$\operatorname{tg}(\frac{\pi}{2} + x) = -\operatorname{cotg} x$
$\operatorname{cotg}(-x) = -\operatorname{cotg} x$	$\operatorname{cotg}(\pi - x) = -\operatorname{cotg} x$	$\operatorname{cotg}(\pi + x) = \operatorname{cotg} x$	$\operatorname{cotg}(\frac{\pi}{2} - x) = \operatorname{tg} x$	$\operatorname{cotg}(\frac{\pi}{2} + x) = -\operatorname{tg} x$

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

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

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

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

$$\operatorname{tg}(x+y) = \frac{\operatorname{tg} x + \operatorname{tg} y}{1 - \operatorname{tg} x \operatorname{tg} y}$$

$$\operatorname{tg}(x-y) = \frac{\operatorname{tg} x - \operatorname{tg} y}{1 + \operatorname{tg} x \operatorname{tg} y}$$

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

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

$$\sin 2x = 2 \sin x \cos x$$

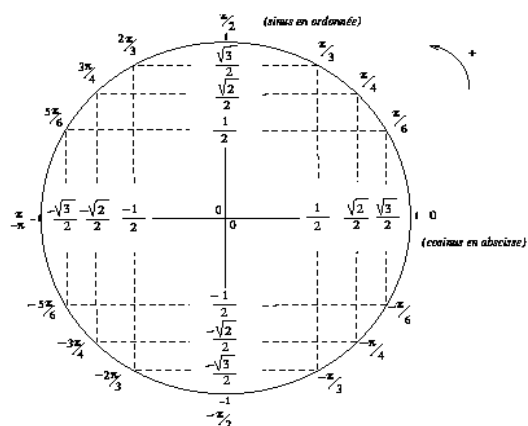
$$\operatorname{tg} 2x = \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$

$$a \cos x + b \sin x = r \cos(x - \theta)$$

$$\text{Avec } r = \sqrt{a^2 + b^2}$$

$$\cos \theta = \frac{a}{r}$$

$$\sin \theta = \frac{b}{r}$$



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

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

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

$$\cos p + \cos q = 2 \cos \frac{p+q}{2} \cos \frac{p-q}{2}$$

$$\cos p - \cos q = -2 \sin \frac{p+q}{2} \sin \frac{p-q}{2}$$

$$\sin p + \sin q = 2 \sin \frac{p+q}{2} \cos \frac{p-q}{2}$$

