



# Formulaire de Trigonométrie

Mathématiques ver 1.0

## Tableau des valeurs remarquables

x	0	$\pi/6$	$\pi/4$	$\pi/3$	$\pi/2$
sin(x)	0	1/2	$\sqrt{2}/2$	$\sqrt{3}/2$	1
cos(x)	1	$\sqrt{3}/2$	$\sqrt{2}/2$	1/2	0
tan(x)	0	$1/\sqrt{3}$	1	$\sqrt{3}$	Non déf

## Relations fondamentales

$$\sin^2(x) + \cos^2(x) = 1 \quad \tan(x) = \frac{\sin(x)}{\cos(x)} = \frac{1}{\cot(x)}$$

$$1 + \tan^2(x) = \frac{1}{\cos^2(x)} \quad 1 + \cot^2(x) = \frac{1}{\sin^2(x)}$$

## Sommes & Produits

$$\begin{aligned} \sin(a+b) &= \sin(a)\cos(b) + \sin(b)\cos(a) \\ \sin(a-b) &= \sin(a)\cos(b) - \sin(b)\cos(a) \\ \cos(a+b) &= \cos(a)\cos(b) - \sin(a)\sin(b) \\ \cos(a-b) &= \cos(a)\cos(b) + \sin(a)\sin(b) \end{aligned}$$

$$\begin{aligned} 2\cos(a)\cos(b) &= \cos(a+b) + \cos(a-b) \\ 2\sin(a)\sin(b) &= \cos(a-b) - \cos(a+b) \\ 2\sin(a)\cos(b) &= \sin(a+b) + \sin(a-b) \end{aligned}$$

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

## Compléments

$$\begin{aligned} \tan(a+b) &= \frac{\tan(a) + \tan(b)}{1 - \tan(a)\tan(b)} \\ \tan(a-b) &= \frac{\tan(a) - \tan(b)}{1 + \tan(a)\tan(b)} \\ \text{en posant : } t &= \tan(a) \\ \sin(2a) &= \frac{2t}{1+t^2} \\ \cos(2a) &= \frac{1-t^2}{1+t^2} \quad \tan(2a) = \frac{2t}{1-t^2} \end{aligned}$$

$$\begin{aligned} \text{en posant } A &= \frac{p+q}{2} \text{ et } D = \frac{p-q}{2} \\ \cos(p) - \cos(q) &= -2\sin(A)\sin(D) \\ \cos(p) + \cos(q) &= 2\cos(A)\cos(D) \\ \sin(p) + \sin(q) &= 2\sin(A)\cos(D) \\ \sin(p) - \sin(q) &= 2\cos(A)\sin(D) \end{aligned}$$

## Formules d'Euler

$$\cos(\theta) = \frac{e^{j\theta} + e^{-j\theta}}{2} \quad \text{et} \quad \sin(\theta) = \frac{e^{j\theta} - e^{-j\theta}}{2j}$$

## Formule de Moivre

$$(\cos\theta + j\sin\theta)^n = \cos(n\theta) + j\sin(n\theta)$$