

# Formulaire de trigonométrie

## 1 Lignes trigonométriques des angles remarquables

$\alpha$	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$
$\sin \alpha$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
$\cos \alpha$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
$\tan \alpha$	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	$\infty$

## 2 Formules élémentaires

$$\forall x \in \mathbb{R}, \sin^2 x + \cos^2 x = 1$$

$$\forall x \in \mathbb{R} - \left\{ k\frac{\pi}{2}, k \in \mathbb{Z} \right\}, 1 + \tan^2 x = \frac{1}{\cos^2 x}$$

## 3 Formules de symétrie et de déphasage

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

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

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

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

$$\cos(\pi + x) = -\cos x$$

$$\sin(\pi + x) = -\sin x$$

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

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

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

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

## 4 Formules d'addition

$$\cos(a + b) = \cos a \cos b - \sin a \sin b$$

$$\sin(a + b) = \sin a \cos b + \cos a \sin b$$

$$\cos(a - b) = \cos a \cos b + \sin a \sin b$$

$$\sin(a - b) = \sin a \cos b - \cos a \sin b$$

## 5 Formules de duplication

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

$$\sin 2a = 2 \sin a \cos a$$

## 6 Formules de linéarisation

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

## 7 Cercle trigonométrique

