

Formulaire de trigonométrie.

(Toutes les formules sont données sous réserve de définition)

$$\sin^2 x + \cos^2 x = 1$$

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

Formules d'addition

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

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

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

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

$$\tan(a + b) = \frac{\tan a + \tan b}{1 - \tan a \tan b}$$

$$\tan(a - b) = \frac{\tan a - \tan b}{1 + \tan a \tan b}$$

Formules de duplication

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

$$= 2 \cos^2 x - 1$$

$$= 1 - 2 \sin^2 x$$

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

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

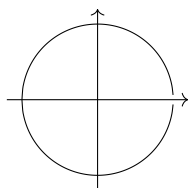
$$\cos^2 x = \frac{1 + \cos(2x)}{2}$$

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

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

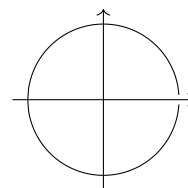
$$\sin(-x) = -\sin(x)$$

$$\tan(-x) = -\tan(x)$$



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

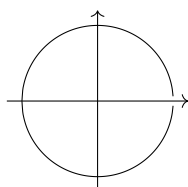
$$\sin\left(\frac{\pi}{2} + x\right) = \cos(x)$$



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

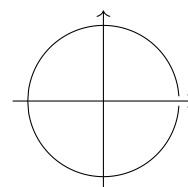
$$\sin(\pi - x) = \sin(x)$$

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



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

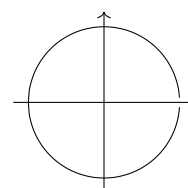
$$\sin\left(\frac{\pi}{2} - x\right) = \cos(x)$$



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

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

$$\tan(\pi + x) = \tan(x)$$



À savoir retrouver :

Transformation de produits en sommes

$$\cos a \cos b = \frac{1}{2}(\cos(a + b) + \cos(a - b))$$

$$\sin a \sin b = \frac{1}{2}(\cos(a - b) - \cos(a + b))$$

$$\sin a \cos b = \frac{1}{2}(\sin(a + b) + \sin(a - b))$$

Transformation de sommes en produits

$$\cos p + \cos q = 2 \cos\left(\frac{p + q}{2}\right) \cos\left(\frac{p - q}{2}\right)$$

$$\cos p - \cos q = -2 \sin\left(\frac{p + q}{2}\right) \sin\left(\frac{p - q}{2}\right)$$

$$\sin p + \sin q = 2 \sin\left(\frac{p + q}{2}\right) \cos\left(\frac{p - q}{2}\right)$$

$$\sin p - \sin q = 2 \cos\left(\frac{p + q}{2}\right) \sin\left(\frac{p - q}{2}\right)$$