

Formules de Trigonométrie

Relation entre les formules

$$\tan(x) = \frac{\sin(x)}{\cos(x)}$$

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

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

$$\cot(x) = \frac{1}{\tan(x)} = \frac{\cos(x)}{\sin(x)}$$

Formules d'addition

$$\begin{aligned}\cos(x+y) &= \cos(x) \cdot \cos(y) - \sin(x) \cdot \sin(y) \\ \cos(x-y) &= \cos(x) \cdot \cos(y) + \sin(x) \cdot \sin(y)\end{aligned}$$

$$\begin{aligned}\sin(x+y) &= \sin(x) \cdot \cos(y) + \cos(x) \cdot \sin(y) \\ \sin(x-y) &= \sin(x) \cdot \cos(y) - \cos(x) \cdot \sin(y)\end{aligned}$$

$$\tan(x+y) = \frac{\tan(x) + \tan(y)}{1 - \tan(x) \cdot \tan(y)}$$

Formules de duplication

$$\cos(2 \cdot x) = \cos^2(x) - \sin^2(x) = 2 \cdot \cos^2(x) - 1 = 1 - 2 \cdot \sin^2(x)$$

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

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

Transformation produit – somme

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

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

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

Transformation somme – produit

$$\cos(x) + \cos(y) = 2 \cdot \cos\left(\frac{x+y}{2}\right) \cdot \cos\left(\frac{x-y}{2}\right)$$

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

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