Formulaire De Trigonométrie

$3^{\text{ème}}$ Année

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

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

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

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

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

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

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

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

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

$\cos(x + 2k\pi) = \cos x \; ; \; k \in \mathbb{Z}$

$\sin(x + 2k\pi) = \sin x \; ; \; k \in \mathbb{Z}$

$-1 \le \cos x \le 1 \; ; \; -1 \le \sin x \le 1$

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

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

avec $r = \sqrt{a^2 + b^2}$ et $\begin{cases} \cos\varphi = \frac{a}{r} \\ \sin\varphi = \frac{b}{r} \end{cases}$

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

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

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

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

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

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

$\cos(2a) = \cos^2 a - \sin^2 a = 2\cos^2 a - 1 = 1 - 2\sin^2 a$

$\sin(2a) = 2\sin a.\cos a$

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

$\cos x = \cos y \Leftrightarrow \begin{cases} x = y + 2k\pi \\ x = -y + 2k\pi \end{cases}$

$\cos x = 0 \Leftrightarrow x = \frac{\pi}{2} + k\pi \; ; \; k \in \mathbb{Z}$

$\sin x = \sin y \Leftrightarrow \begin{cases} x = y + 2k\pi \\ x = \pi - y + 2k\pi \end{cases}$

$\sin x = 0 \Leftrightarrow x = k\pi \; ; \; k \in \mathbb{Z}$

$\tan x = \tan y \Leftrightarrow x = y + k\pi$

$k \in \mathbb{Z}$

$\cos x = \sin x \Leftrightarrow x = \frac{\pi}{4} + k\pi$

$k \in \mathbb{Z}$