Trigonométrie

Règles de calculs 1. Valeurs particuliéres

x	0	$\dfrac{\pi}{6}$	$\dfrac{\pi}{4}$	$\dfrac{\pi}{3}$	$\dfrac{\pi}{2}$	π
$\cos(x)$	1	$\dfrac{\sqrt{3}}{2}$	$\dfrac{\sqrt{2}}{2}$	$\dfrac{1}{2}$	0	-1
$\sin(x)$	0	$\frac{1}{2}$	$\dfrac{\sqrt{2}}{2}$	$\dfrac{\sqrt{3}}{2}$	1	0
$\tan(x)$	0	$\dfrac{\sqrt{3}}{3}$	1	$\sqrt{3}$	ND	0

Règles de calculs 2. Pour tout $\theta \in \mathbb{R}$:

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

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

Règles de calculs 3. Pour tout $x \in \mathbb{R}$

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

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

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

Règles de calculs 4. Pour tout $a, b \in \mathbb{R}^2$ on a :

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

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

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

Règles de calculs 5. Pour tout $a \in \mathbb{R}$, on a :

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

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

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