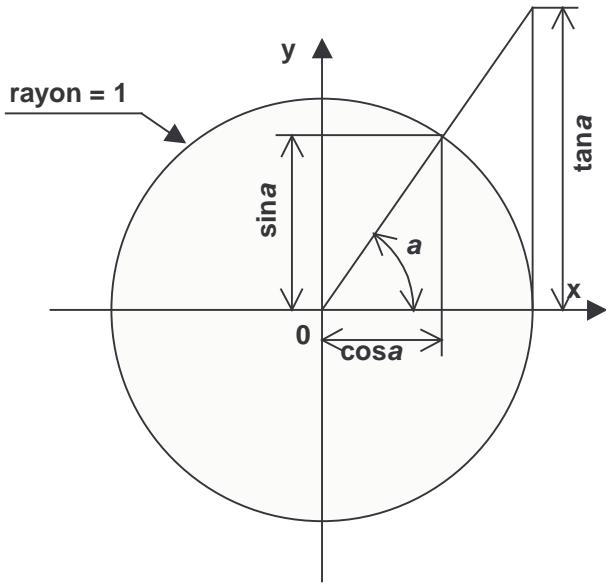


Formulaire de trigonométrie



$$\begin{aligned}\cos 0 &= 1 ; \sin 0 = 0 ; \tan 0 = 0 \\ \cos \frac{\pi}{6} &= \frac{\sqrt{3}}{2} ; \sin \frac{\pi}{6} = \frac{1}{2} ; \tan \frac{\pi}{6} = \frac{\sqrt{3}}{3} \\ \cos \frac{\pi}{4} &= \frac{\sqrt{2}}{2} ; \sin \frac{\pi}{4} = \frac{\sqrt{2}}{2} ; \tan \frac{\pi}{4} = 1 \\ \cos \frac{\pi}{3} &= \frac{1}{2} ; \sin \frac{\pi}{3} = \frac{\sqrt{3}}{2} ; \tan \frac{\pi}{3} = \sqrt{3} \\ \cos \frac{\pi}{2} &= 0 ; \sin \frac{\pi}{2} = 1 ; \tan \frac{\pi}{2} \text{ non définie}\end{aligned}$$

$$\begin{aligned}\cos(-a) &= \cos a ; \sin(-a) = -\sin a ; \tan(-a) = -\tan a \\ \cos(\pi - a) &= -\cos a ; \sin(\pi - a) = \sin a ; \tan(\pi - a) = -\tan a \\ \cos(\pi + a) &= -\cos a ; \sin(\pi + a) = -\sin a ; \tan(\pi + a) = \tan a \\ \cos\left(\frac{\pi}{2} - a\right) &= \sin a ; \sin\left(\frac{\pi}{2} - a\right) = \cos a ; \tan\left(\frac{\pi}{2} - a\right) = \frac{1}{\tan a} \\ \cos\left(\frac{\pi}{2} + a\right) &= -\sin a ; \sin\left(\frac{\pi}{2} + a\right) = \cos a ; \tan\left(\frac{\pi}{2} + a\right) = -\frac{1}{\tan a}\end{aligned}$$

$$\begin{aligned}\cos p + \cos q &= 2 \cos \frac{p+q}{2} \cos \frac{p-q}{2} \\ \cos p - \cos q &= -2 \sin \frac{p+q}{2} \sin \frac{p-q}{2} \\ \sin p + \sin q &= 2 \sin \frac{p+q}{2} \cos \frac{p-q}{2} \\ \sin p - \sin q &= 2 \cos \frac{p+q}{2} \sin \frac{p-q}{2} \\ \tan p + \tan q &= \frac{\sin(p+q)}{\cos p \cos q} ; \tan p - \tan q = \frac{\sin(p-q)}{\cos p \cos q}\end{aligned}$$

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

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

$$\sin^2 a = \frac{\tan^2 a}{1 + \tan^2 a}$$

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

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

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

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

$$\cos 2a = \cos^2 a - \sin^2 a$$

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

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

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

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

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

$$\cos^2 a = \frac{1 + \cos 2a}{2}$$

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

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

$$\cos a = \frac{1 - t^2}{1 + t^2}$$

$$\sin a = \frac{2t}{1 + t^2}$$

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

$$t = \frac{\sin a}{1 + \cos a}$$

$$\text{où } t = \tan \frac{a}{2}$$