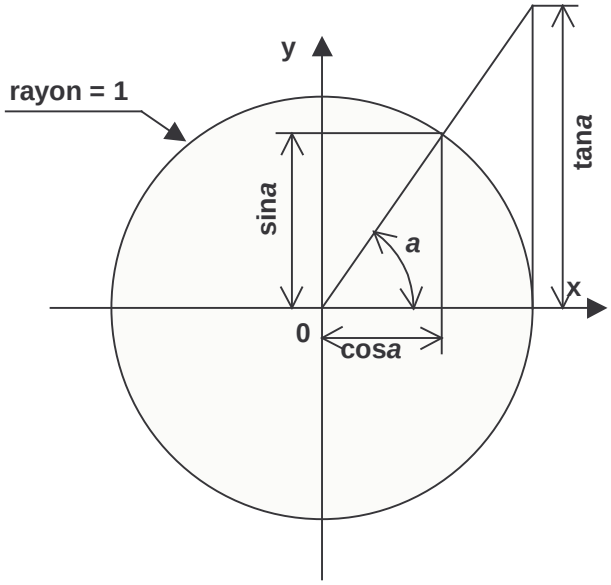
Formulaire de trigonométrie



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

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

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

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

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

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

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

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

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

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

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

$$\cos a = \frac{1-t^2}{1+t^2}$$
$$\sin a = \frac{2t}{1+t^2}$$
$$\tan a = \frac{2t}{1-t^2}$$
$$t = \frac{\sin a}{1+\cos a}$$
$$\text{où } t = \tan\frac{a}{2}$$