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

*Formules d'addition*

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

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

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

*Formules de duplication*

$$\begin{aligned} \cos 2a &= \cos^2 a - \sin^2 a \\ &= 2\cos^2 a - 1 \\ &= 1 - 2\sin^2 a \end{aligned} \qquad \sin 2a = 2 \sin a \cos a \qquad \tan 2a = \frac{2\tan a}{1 - \tan^2 a}$$

*Transformation de produit en somme*

$$2\cos a \cos b = \cos(a+b) + \cos(a-b) \qquad 2 \sin a \sin b = \cos(a-b) - \cos(a+b)$$

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

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

*Transformation de somme en produit*

$$\cos p + \cos q = 2\cos(\tfrac{p+q}{2})\cos(\tfrac{p-q}{2}) \qquad \cos p - \cos q = -2\sin(\tfrac{p+q}{2})\sin(\tfrac{p-q}{2})$$

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

$$1 + \cos a = 2\cos^2 \tfrac{a}{2} \qquad 1 - \cos a = 2 \sin^2 \tfrac{a}{2}$$

*Expression en fonction de $t = \tan \frac{a}{2}$*

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

$$\tan a = \frac{2t}{1-t^2} \qquad \text{si } t^2 \neq 1$$