

Formulaire de trigonométrie

$$\tan \theta = \frac{\sin \theta}{\cos \theta}$$

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

$$\cos \theta = \frac{e^{j.\theta} + e^{-j.\theta}}{2}$$

$$\sin \theta = \frac{e^{j.\theta} - e^{-j.\theta}}{2j}$$

$$\cos \theta = \operatorname{Re} (e^{j.\theta}) = \operatorname{Re} (e^{-j.\theta})$$

$$\sin \theta = \operatorname{Im} (e^{j.\theta}) = -\operatorname{Im} (e^{-j.\theta})$$

$$\sin \alpha + \sin \beta = 2. \sin \left(\frac{\alpha + \beta}{2} \right) . \cos \left(\frac{\alpha - \beta}{2} \right)$$

$$\sin \alpha - \sin \beta = 2. \cos \left(\frac{\alpha + \beta}{2} \right) . \sin \left(\frac{\alpha - \beta}{2} \right)$$

$$\cos \alpha + \cos \beta = 2. \cos \left(\frac{\alpha + \beta}{2} \right) . \cos \left(\frac{\alpha - \beta}{2} \right)$$

$$\cos \alpha - \cos \beta = -2. \sin \left(\frac{\alpha + \beta}{2} \right) . \sin \left(\frac{\alpha - \beta}{2} \right)$$

$$\sin \alpha . \sin \beta = \frac{\cos (\alpha - \beta) - \cos (\alpha + \beta)}{2}$$

$$\sin \alpha . \cos \beta = \frac{\sin (\alpha - \beta) + \sin (\alpha + \beta)}{2}$$

$$\cos \alpha . \cos \beta = \frac{\cos (\alpha - \beta) + \cos (\alpha + \beta)}{2}$$

$$\sin (\alpha \pm \beta) = \sin \alpha . \cos \beta \pm \cos \alpha . \sin \beta$$

$$\cos (\alpha \pm \beta) = \cos \alpha . \cos \beta \mp \sin \alpha . \sin \beta$$

$$\tan (\alpha \pm \beta) = \frac{\tan \alpha \pm \tan \beta}{1 \mp \tan \alpha . \tan \beta}$$

$$\cot (\alpha \pm \beta) = \frac{\cot \alpha . \cot \beta \mp 1}{\cot \alpha \pm \cot \beta}$$

$$\cos \left(\alpha \pm \frac{\pi}{2} \right) = \mp \sin \alpha$$

$$\sin \left(\alpha \pm \frac{\pi}{2} \right) = \pm \cos \alpha$$

$$\tan \left(\alpha \pm \frac{\pi}{2} \right) = -\cot \alpha$$

$$\cot \left(\alpha \pm \frac{\pi}{2} \right) = -\tan \alpha$$

$$\sin \frac{\alpha}{2} = \pm \sqrt{\frac{1 - \cos \alpha}{2}}$$

$$\cos \frac{\alpha}{2} = \pm \sqrt{\frac{1 + \cos \alpha}{2}}$$

$$\tan \frac{\alpha}{2} = \pm \sqrt{\frac{1 - \cos \alpha}{1 + \cos \alpha}}$$

$$\cos (2\alpha) = \cos^2 (\alpha) - \sin^2 (\alpha) = 1 - 2. \sin^2 (\alpha) = 2. \cos^2 (\alpha) - 1$$

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

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