

$$\sin \alpha = -\sin(-\alpha)$$

$$\cos \alpha = \cos(-\alpha)$$

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

$$\sin(\alpha + \beta) = \sin \alpha \cdot \cos \beta + \sin \beta \cdot \cos \alpha$$

$$\sin(\alpha - \beta) = \sin \alpha \cdot \cos \beta - \sin \beta \cdot \cos \alpha$$

$$\cos(\alpha + \beta) = \cos \alpha \cdot \cos \beta - \sin \alpha \cdot \sin \beta$$

$$\cos(\alpha - \beta) = \cos \alpha \cdot \cos \beta + \sin \alpha \cdot \sin \beta$$

$$\sin 2\alpha = 2 \sin \alpha \cdot \cos \alpha$$

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

$$= 2 \cos^2 \alpha$$

$$\sin 3\alpha = 3 \sin \alpha - 4 \sin^3 \alpha$$

$$\cos 3\alpha = 4 \cos^3 \alpha - 3 \cos \alpha$$

$$\tan \alpha = \frac{\sin \alpha}{\cos \alpha} \quad \tan(-\alpha) = -\tan \alpha$$

$$\tan(\alpha + \beta) = \frac{\tan \alpha + \tan \beta}{1 - \tan \alpha \cdot \tan \beta}$$

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

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

$$\tan\left(\frac{a}{2}\right) = t \Rightarrow \sin \alpha = \frac{2t}{1+t^2}, \quad \cos \alpha = \frac{1-t^2}{1+t^2}$$

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

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

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

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

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

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

$$2 \cos \alpha \cdot \cos \beta = \cos(\alpha + \beta) + \cos(\alpha - \beta)$$

$$2 \sin \alpha \cdot \sin \beta = \cos(\alpha - \beta) - \cos(\alpha + \beta)$$

$$2 \sin \alpha \cdot \cos \beta = \sin(\alpha + \beta) + \sin(\alpha - \beta)$$

$$\tan \alpha \pm \tan \beta = \frac{\sin(\alpha \mp \beta)}{\cos \alpha \cdot \cos \beta}$$

$$2 \cdot \sin \alpha \cdot \cos \beta = \sin(\alpha + \beta) + \cos(\alpha - \beta)$$

$$c^2 = a^2 + b^2 - 2ab \cos \gamma$$

$$\frac{\sin \alpha}{a} + \frac{\sin \beta}{b} + \frac{\sin \gamma}{c} = \frac{1}{2r_o}$$

$$pl = \frac{a \cdot b \cdot \sin \gamma}{2r_o} = 2r_o^2 \cdot \sin \alpha \cdot \sin \beta \cdot \sin \gamma$$

$$\sin \gamma = \sin(\alpha + \beta), \quad \cos \gamma = -\cos(\alpha + \beta)$$

$$\cos(\arcsin x) = \sqrt{1 - x^2}$$