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

$$\tan(\alpha) = \frac{sin(\alpha)}{\cos(\alpha)}, \quad where\ \alpha \neq \frac{\pi}{2} + k\pi, \quad k \in \mathbb{R}$$

α	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$
$\sin(\theta)$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
$\cos(\theta)$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
$\tan(\theta)$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	∞

Table 1: Values of trigonometric functions

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

$$\tan(\alpha + \beta) = \frac{\tan(\alpha) + \tan(\beta)}{1 - \tan(\alpha)\tan(\beta)} \quad if \quad \alpha, \beta, \alpha + \beta \neq \frac{\pi}{2} + k\pi, k \in \mathbb{Z}$$
$$\tan(\alpha - \beta) = \frac{\tan(\alpha) - \tan(\beta)}{1 + \tan(\alpha)\tan(\beta)} \quad if \quad \alpha, \beta, \alpha - \beta \neq \frac{\pi}{2} + k\pi, k \in \mathbb{Z}$$

$$\sin(2\alpha) = 2\sin(\alpha)\cos(\alpha)$$
$$\cos(2\alpha) = \cos^2(\alpha) - \sin^2(\alpha)$$
$$\cos(2\alpha) = 2\cos^2(\alpha) - 1$$
$$\cos(2\alpha) = 1 - 2\sin^2(\alpha)$$
$$\tan(2\alpha) = \frac{2\tan(\alpha)}{1 - \tan^2(\alpha)} \quad if \quad \tan(\alpha)\ exists \quad and \quad \tan^2(\alpha) \neq 1$$

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

$$\sin(\alpha)\sin(\beta) = -\frac{1}{2}[\cos(\alpha + \beta) - \cos(\alpha - \beta)]$$
$$\cos(\alpha)\cos(\beta) = \frac{1}{2}[\cos(\alpha + \beta) + \cos(\alpha - \beta)]$$
$$\sin(\alpha)\cos(\beta) = \frac{1}{2}[\sin(\alpha + \beta) - \sin(\alpha - \beta)]$$