

$$\begin{aligned}\sin \alpha \pm \sin \beta &= 2 \sin \frac{\alpha \pm \beta}{2} \cos \frac{\alpha \mp \beta}{2} \\ \cos \alpha + \cos \beta &= 2 \cos \frac{\alpha + \beta}{2} \cos \frac{\alpha - \beta}{2} \\ \cos \alpha - \cos \beta &= 2 \sin \frac{\alpha + \beta}{2} \sin \frac{\beta - \alpha}{2}\end{aligned}$$

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

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

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

$$\sin \alpha \pm \beta = \sin \alpha \cos \beta \pm \cos \alpha \sin \beta$$

$$\cos \alpha \pm \beta = \cos \alpha \cos \beta \mp \sin \alpha \sin \beta$$