

1. Show that if $0 \leq \alpha, \beta \leq \frac{\pi}{2}$ and $\frac{\pi}{2} < \alpha + \beta \leq \pi$. Then:

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

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

2. Show for all $\alpha, \beta \in \mathbb{R}$ then:

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

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