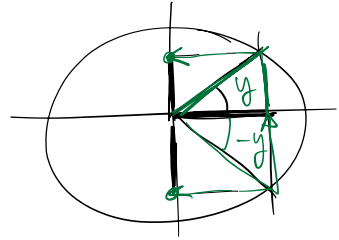


$$\cos(x+y) = \cos x \cos y - \sin x \sin y$$



$$\cos(x-y) = \cos(x+(-y))$$

$$= \cos x \overbrace{\cos(-y)}^{\cos y} - \sin x \overbrace{\sin(-y)}^{-\sin y}$$

$$\cos(x-y) = \cos x \cos y + \sin x \sin y$$

$$\cos \underbrace{(x+y)}_{\alpha} + \cos \underbrace{(x-y)}_{\beta} = 2 \cos x \cos y \Leftrightarrow \cos \alpha + \cos \beta$$

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

$$\alpha = x+y$$

$$\alpha = x+y$$

$$\beta = x-y$$

$$\beta = x-y$$

$$+$$

$$-$$

$$\alpha + \beta = 2x + 0$$

$$\alpha - \beta = 2y$$