

$\frac{\cos}{\sin}$

$\frac{1}{\cos}$

$$\sqrt{2} \cot \theta - 3 \sec \theta = \cot \theta \sec \theta - 3 \sec \theta$$

$$\frac{\cancel{\cos \theta}}{\cancel{\sin \theta}} \cdot \frac{1}{\cancel{\cos \theta}}$$

$$\cancel{\sin \theta} \cdot \frac{\sqrt{2} \cancel{\cos \theta}}{\cancel{\sin \theta}} = \frac{1}{\cancel{\sin \theta}} \cdot \cancel{\sin \theta}$$

$$\sqrt{2} \cos \theta = 1$$

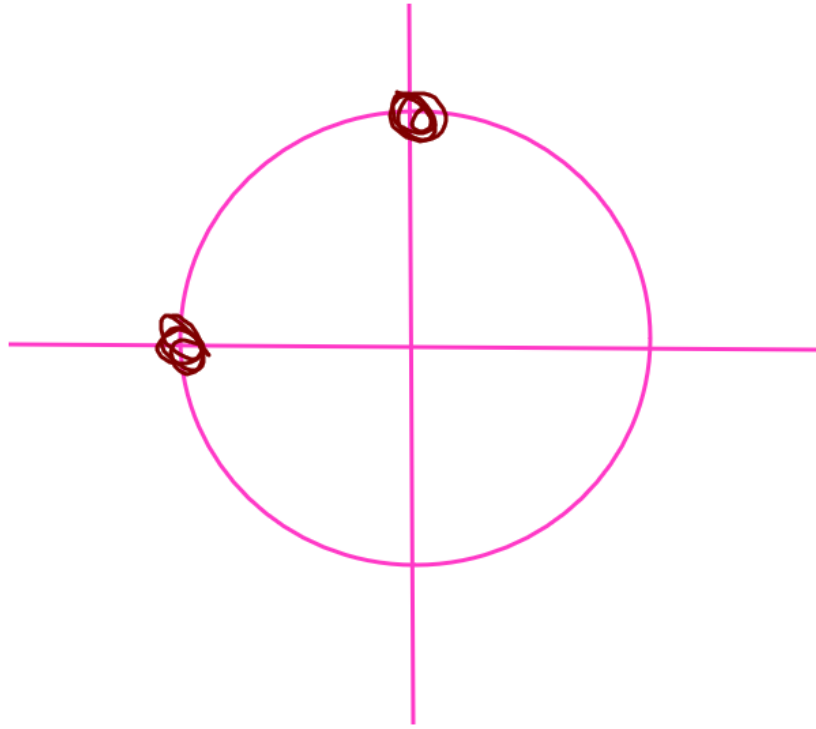
$$\cos \theta = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$-\cos \theta + \sin \theta = 1$$

$$\sin \theta - \cos \theta = 1$$

$$1 - 0 = 1 \quad \left(\frac{\pi}{2}\right)$$

$$0 - (-1) = +1 \quad (\pi)$$



$a+b$

Sine  
cosine  
tangent

SIN COS  
COS COS

$a-b$

COS SIN  
SIN SIN

Sine  
(sign)

Signs

THE

Same

$$\sin(\underline{a+b}) = \sin a \cos b + \cos a \sin b$$

$$\sin(\underline{a-b}) = \sin a \cos b - \cos a \sin b$$

$$\sin\left(\frac{7\pi}{12}\right) = \overset{K}{\sin\left(\frac{\pi}{4} + \frac{\pi}{3}\right)} = \overset{M}{\sin\left(\frac{5\pi}{6} - \frac{\pi}{4}\right)}$$

$$\sin \frac{\pi}{4} \cos \frac{\pi}{3} + \cos \frac{\pi}{4} \sin \frac{\pi}{3}$$

$$\frac{\sqrt{2}}{2} \cdot \frac{1}{2} + \frac{\sqrt{2}}{2} \cdot \frac{\sqrt{3}}{2}$$

$$\frac{\sqrt{2}}{4}, \frac{\sqrt{6}}{4} = \frac{\sqrt{2} + \sqrt{6}}{4}$$

$$\sin \frac{5\pi}{6} \cos \frac{\pi}{4} - \cos \frac{5\pi}{6} \sin \frac{\pi}{4}$$

$$\frac{1}{2} \cdot \frac{\sqrt{2}}{2} - \left(-\frac{\sqrt{3}}{2} \cdot \frac{\sqrt{2}}{2}\right)$$

$$\frac{\sqrt{2}}{4} + \frac{\sqrt{6}}{4} = \frac{\sqrt{2} + \sqrt{6}}{4}$$

Circle  $\sin$   $\rightarrow$  changes

$$\cos(a+b) = \cos a \cos b - \sin a \sin b$$

$$\cos(a-b) = \cos a \cos b + \sin a \sin b$$

$$\cos\left(\frac{5\pi}{12}\right) = \cos\left(\frac{2\pi}{12} + \frac{3\pi}{12}\right) = \cos\left(\frac{5\pi}{6} - \frac{\pi}{4}\right)$$

$$\tan(a+b) = \frac{\sin(a+b)}{\cos(a+b)} = \frac{\frac{\sin a \cos b + \cos a \sin b}{\cos a \cos b}}{\frac{\cos a \cos b - \sin a \sin b}{\cos a \cos b}}$$

$$= \frac{\sin a + \tan a \tan b}{1 - \tan a \tan b}$$

$$\tan(a-b) = \frac{\tan a - \tan b}{1 + \tan a \tan b}$$