

Trig applications

2/19/16

$$\sin \theta = \frac{1}{\csc \theta}$$

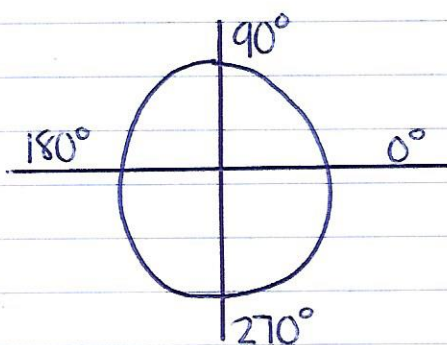
$$\csc \theta = \frac{1}{\sin \theta}$$

$$\cos \theta = \frac{1}{\sec \theta}$$

$$\sec \theta = \frac{1}{\cos \theta}$$

$$\tan \theta = \frac{1}{\cot \theta}$$

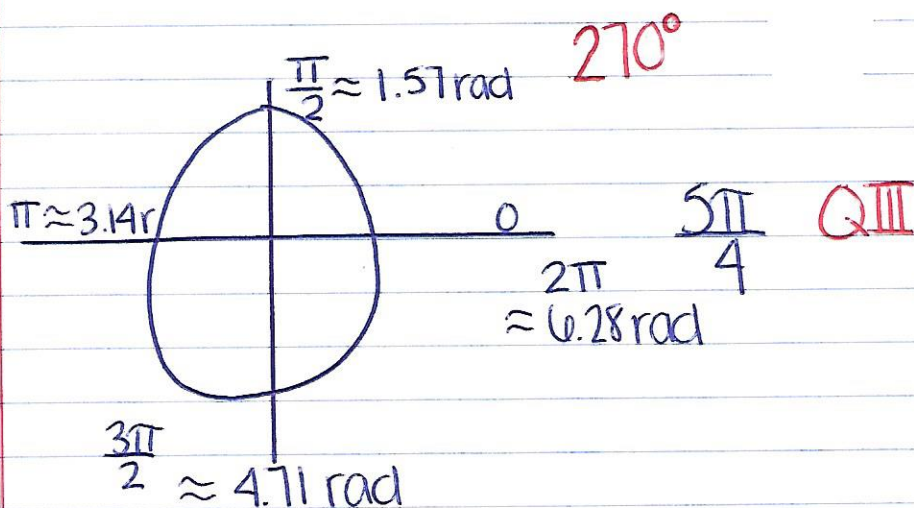
$$\cot \theta = \frac{1}{\tan \theta}$$



27° QI

105° QII

-10° QIV



270°

QIII

Ex. Evaluate the expression

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

a.) $\overset{y}{\sin 60^\circ} - \overset{x}{\cos 60^\circ}$

b.) $4 \cdot \sin 60^\circ \cdot \cos 240^\circ$

$$\frac{\sqrt{3}}{2} - \frac{1}{2} = \frac{\sqrt{3}-1}{2}$$

$$4 \cdot \frac{1}{2} \cdot \frac{-1}{2} = -\frac{4}{4} = -1$$

Ex. 2 a) $\cos^2\left(\frac{2\pi}{3}\right) + \sin^2\left(\frac{2\pi}{3}\right)$

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

$$\frac{1}{4} + \frac{3}{4} = \boxed{1}$$

b) $\sin^2\left(\frac{7\pi}{6}\right) + \cos^2\left(\frac{\pi}{4}\right)$

$$\left(-\frac{1}{2}\right)^2 + \left(\frac{\sqrt{2}}{2}\right)^2$$

$$\frac{1}{4} + \frac{2}{4} = \boxed{\frac{3}{4}}$$

Ex. 3.

a) $\cos\theta = 0.6468$ and QIV

d) $\csc\theta = 1.395$
Q II

Degress
mode :

$$\theta = \cos^{-1}(0.6468)$$

$$\theta = 49.699^\circ$$

$$\theta = \frac{1}{\sin^{-1}(1.395)}$$

since it needs to be in QIV

$$\theta = \text{und}$$

Reference
Angle

QIV: $360^\circ - 49.699^\circ$

$$\boxed{310.3^\circ}$$