

MTH-PT Trigonometry

Session 11 (0,1) 3/2

(x, y)
↑
cos sin

$\sin\left(\frac{\pi}{6}\right) =$
 $\cos\left(\frac{5\pi}{4}\right) = -\frac{\sqrt{2}}{2}$
 X

$\cos\left(\frac{7\pi}{6}\right) = -\frac{\sqrt{3}}{2}$
 X

$\sin\left(\frac{7\pi}{6}\right) = -\frac{1}{2}$
 y

$\tan\left(\frac{7\pi}{4}\right) = -1$

$\tan\left(\frac{4\pi}{3}\right) = \frac{y}{x}$

$-\frac{\sqrt{3}}{2} \div -\frac{1}{2} = \frac{-\sqrt{3}}{2} \cdot \frac{2}{-1} = +\sqrt{3}$

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

$\sin\left(\frac{\pi}{6}\right) = \frac{1}{2}$

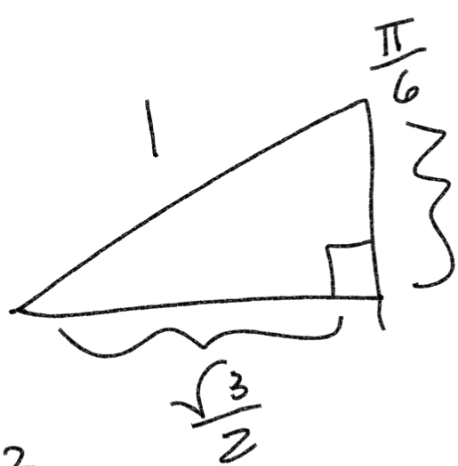
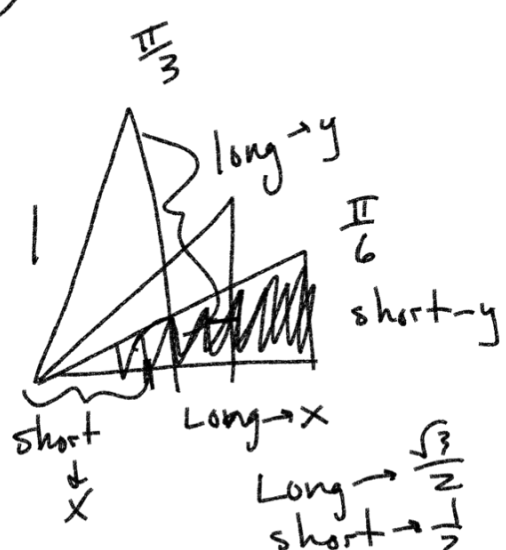
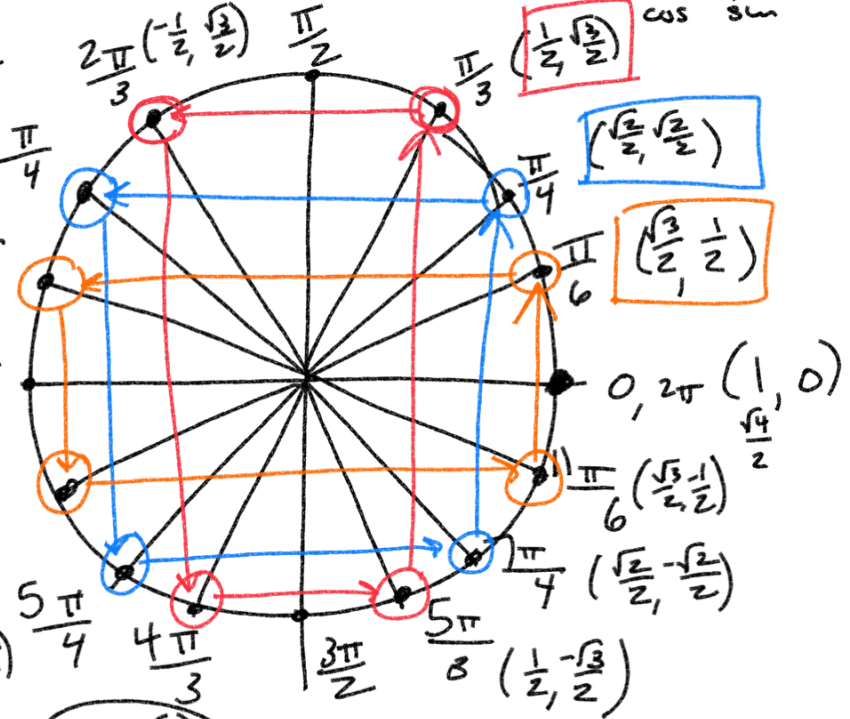
$\sin\left(\frac{3\pi}{6}\right) = \sin\left(\frac{\pi}{2}\right) = 1$

one less
 $\left(-\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$
 $\frac{3\pi}{4}$

me
 more
 $\left(-\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$
 $\frac{5\pi}{6}$

$\left(-\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$
 $\frac{5\pi}{4}$

$\left(-\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$
 $\frac{7\pi}{6}$



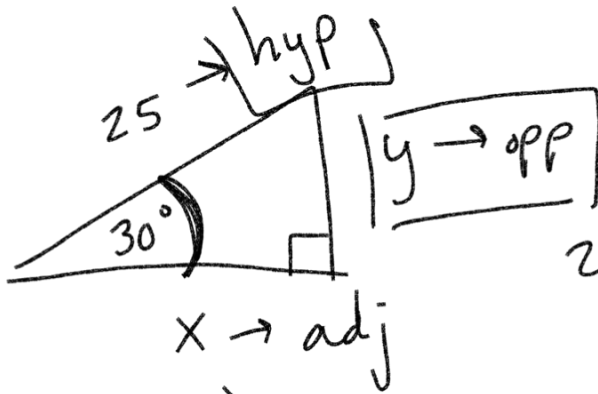
$\frac{1}{2} = y$

$a^2 + b^2 = c^2$
 $\left(\frac{\sqrt{3}}{2}\right)^2 + \left(\frac{1}{2}\right)^2 = 1^2$

$\frac{3}{4} + \frac{1}{4} = 1$ ✓

$x^2 + y^2 = 1$
 $\cos^2 \theta + \sin^2 \theta = 1$

SOH CAH TOA



$$25(\sin 30) = \left(\frac{y}{25}\right) 25$$

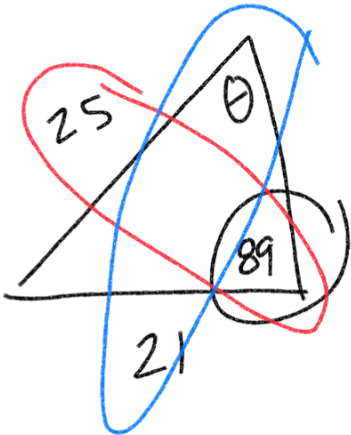
$$y = 25 \sin 30^\circ$$

$$25\left(\frac{1}{2}\right) = \boxed{12.5}$$

$$25(\cos 30) = \left(\frac{x}{25}\right) 25$$

$$x = 25 \cos 30^\circ = 21.7$$

$$25\left(\frac{\sqrt{3}}{2}\right) = \frac{25\sqrt{3}}{2} = 21.7$$



Not a Right Triangle

Proportion

$$\frac{\sin 89}{25} = \frac{\sin \theta}{21}$$

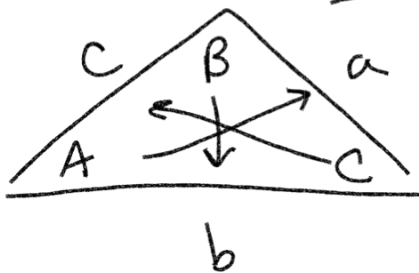
$$\frac{21 \sin 89}{25} = \frac{25 \sin \theta}{25}$$

$$\sin \theta = \frac{21 \sin 89}{25}$$

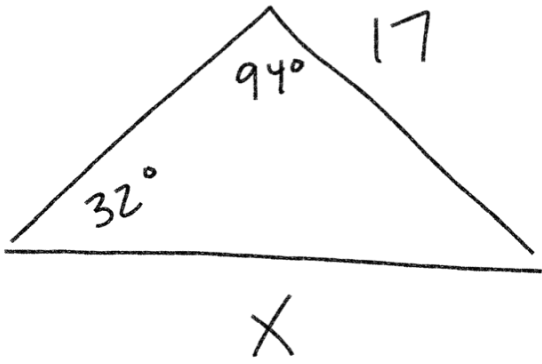
Law of Sines

$$\theta = \sin^{-1}\left(\frac{21 \sin 89}{25}\right)$$

$$\boxed{\theta = 57^\circ}$$



$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$



$$\frac{\sin 32}{17} = \frac{\sin 94}{X}$$

$$\frac{17(\sin 94)}{\sin 32} = \frac{X \sin 32}{\sin 32}$$

$$X = \frac{17 \sin 94}{\sin 32} = \boxed{32}$$