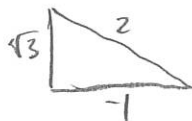
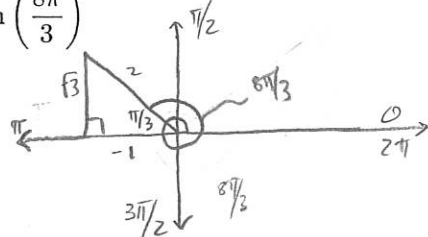


§1.4: TRIGONOMETRY

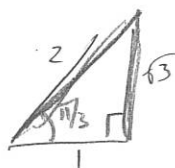
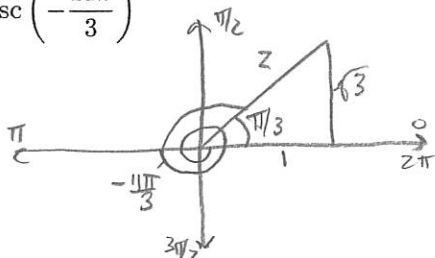
1.] Evaluate the following expressions:

a.) $\sin\left(\frac{8\pi}{3}\right)$

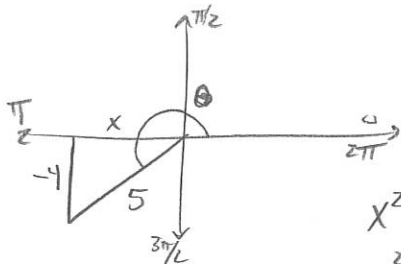


$$\sin\left(\frac{8\pi}{3}\right) = \frac{\sqrt{3}}{2}$$

b.) $\csc\left(-\frac{11\pi}{3}\right)$



$$\csc\left(-\frac{11\pi}{3}\right) = \frac{2}{\sqrt{3}}$$

2.] Suppose $\sin(\theta) = -\frac{4}{5}$ and $\pi < \theta < \frac{3\pi}{2}$. Evaluate the other five trigonometric functions at θ .

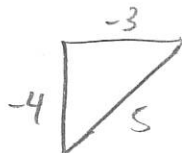
$$\sin(\theta) = -\frac{4}{5} = \frac{\text{OPP}}{\text{HYP}}$$

$$x^2 + (-4)^2 = 5^2$$

$$x^2 + 16 = 25$$

$$x^2 = 9$$

$$x = -3$$



$$\cos(\theta) = -\frac{3}{5}$$

$$\tan(\theta) = \frac{4}{3}$$

$$\csc(\theta) = -\frac{5}{4}$$

$$\sec(\theta) = -\frac{5}{3}$$

$$\cot(\theta) = \frac{3}{4}$$

3.] Solve the following trigonometric equation: $\sqrt{2}\sin(x) + 1 = 0$

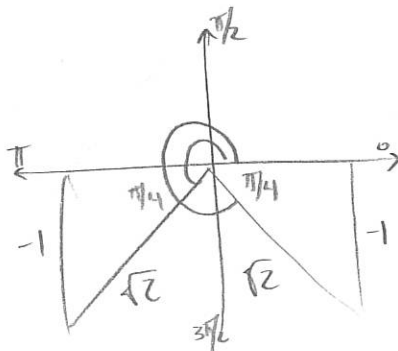
$$\sqrt{2}\sin(x) + 1 = 0$$

$$\Rightarrow \sin(x) = -\frac{1}{\sqrt{2}}$$

$$x = \frac{5\pi}{4}, \frac{7\pi}{4}$$

$$\sin(x) = -\frac{1}{\sqrt{2}}$$

$$x = \arcsin\left(-\frac{1}{\sqrt{2}}\right)$$



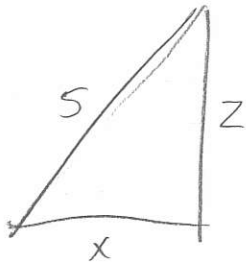
$$x = \pi + \frac{\pi}{4} = \frac{5\pi}{4}$$

$$x = \frac{3\pi}{2} + \frac{\pi}{4} = \frac{7\pi}{4}$$

4.] Suppose $\theta = \arcsin\left(\frac{2}{5}\right)$. Find $\cos \theta$ and $\tan \theta$.

$$\theta = \arcsin\left(\frac{2}{5}\right)$$

$$\Rightarrow \sin(\theta) = \frac{2}{5}$$



$$x^2 + 4 = 25$$

$$x = \sqrt{21}$$

$$\cos(\theta) = \frac{\sqrt{21}}{5}$$

$$\tan(\theta) = \frac{2}{\sqrt{21}}$$

5.] Fill in the unit circle below:

$(\cos(\theta), \sin(\theta))$

