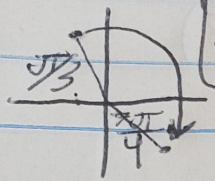
Math 418

Nov. 19

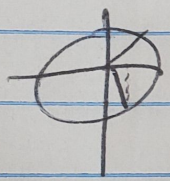
Quiz 9

1. 

$$\frac{5\pi}{6} \qquad 2\pi + \frac{5\pi}{6}$$

2a $\sin\left(\frac{-7\pi}{3}\right) \rightarrow \sin^2\alpha + \cos^2\alpha = 1, \left(\frac{-7\pi}{3}\right)\left(\frac{-7\pi}{3}\right) + \cos^2\alpha = 1$

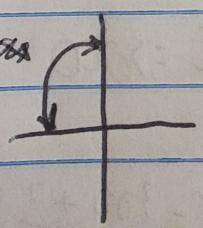
$\frac{49\pi^2}{9} + \cos^2\alpha = 1, \cos^2\alpha = 1 - \frac{49\pi^2}{9}$



~~$\cos^2\alpha = \frac{-40\pi^2}{9}$~~ $\sin\left(\frac{-7\pi}{3}\right) = \sin\left(\frac{-\pi}{3}\right) = \boxed{\frac{\sqrt{3}}{2}}$

2b. $\tan\left(\frac{9\pi}{4}\right) = \frac{\sin\left(\frac{9\pi}{4}\right)}{\cos\left(\frac{9\pi}{4}\right)} \rightarrow \frac{9\pi}{4} = \frac{\pi}{4} \rightarrow \sin\frac{\pi}{4} = \frac{\sqrt{2}}{2} \rightarrow$

$\cos\frac{\pi}{4} = \frac{\sqrt{2}}{2} \rightarrow \frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = \boxed{1}$

3. 

$\sin\alpha = \frac{3}{7} \quad \left(\frac{3}{7}\right)^2 \quad \frac{49}{49} - \frac{9}{49}$

$\cos\alpha = \pm\sqrt{40/49} \rightarrow \frac{\sqrt{40}}{7}$

$\boxed{\cos\alpha = -\frac{\sqrt{40}}{7}}$