

Name: _____

Show all work on the quiz in the space provided. Correct answers without work will not receive credit. There are to be no calculators used for this quiz.

1. Find the amplitude and period of the sinusoidal curve $y = \pi \cos(3x)$.

For the sinusoidal curve $y = A \cos(\omega x)$, amplitude is $|A|$ and period is $T = \frac{2\pi}{\omega}$. So for this curve, the amplitude is $|\pi| = \pi$ and the period is $T = \frac{2\pi}{3}$.

2. Let θ be an angle in the second quadrant with $\sin \theta = \frac{4}{5}$. Find the exact values of the 6 trig functions for θ .

Since $\cos^2 \theta + \sin^2 \theta = 1$, we have

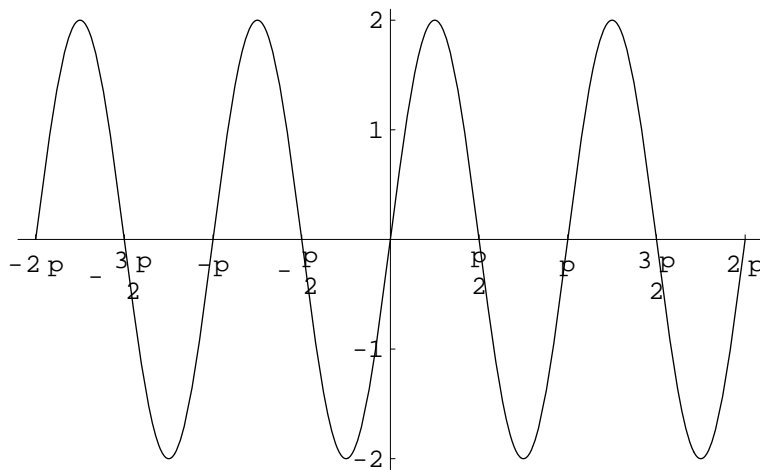
$$\begin{aligned}\left(\frac{4}{5}\right)^2 + \cos^2 \theta &= 1 \\ \frac{16}{25} + \cos^2 \theta &= 1 \\ \cos^2 \theta &= 1 - \frac{16}{25} = \frac{9}{25} \\ \cos \theta &= \pm \frac{3}{5}\end{aligned}$$

As θ is in the second quadrant, $\cos \theta$ is negative and so $\cos \theta = -\frac{3}{5}$.

Then we have

$$\begin{aligned}\sin \theta &= \frac{4}{5} & \sec \theta &= \frac{1}{\cos \theta} = \frac{1}{-\frac{3}{5}} = -\frac{5}{3} \\ \cos \theta &= -\frac{3}{5} & \csc \theta &= \frac{1}{\sin \theta} = \frac{1}{\frac{4}{5}} = \frac{5}{4} \\ \tan \theta &= \frac{\sin \theta}{\cos \theta} = \frac{\frac{4}{5}}{-\frac{3}{5}} = -\frac{4}{3} & \cot \theta &= \frac{1}{\tan \theta} = \frac{1}{-\frac{4}{3}} = -\frac{3}{4}\end{aligned}$$

3. Give an equation of a sinusoidal curve with the following graph:



From the graph, we see that the amplitude is 2 and the period is π . Since $T = \frac{2\pi}{\omega}$, $\pi = \frac{2\pi}{\omega}$ and so $\omega = \frac{2\pi}{\pi} = 2$. As $(0,0)$ is a point on the curve, we use the sine function. Therefore a sinusoidal curve with the graph above is $y = 2 \sin(2x)$.