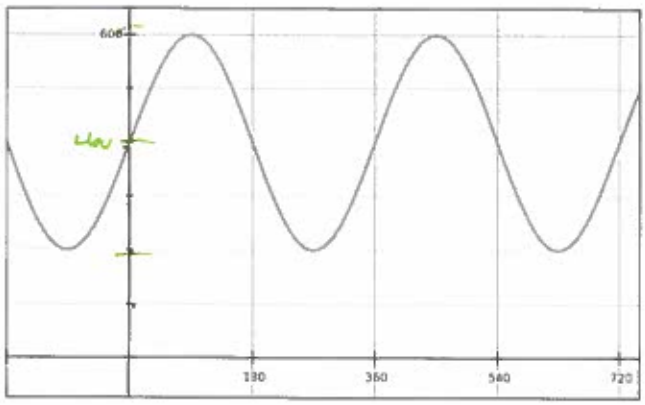
Quiz 3 Math 112, Winter '17, Wray Name: Key

You will have at least 15 minutes to complete the quiz. You may use a calculator for computations, but your process must still be evident in the work you show. SHOW YOUR WORK. Also, there is a backside.

1. [4 pts] The graph of $f(\theta)$ is shown below. This function f describes the height of the rider of a Ferris wheel. That is, if the rider is θ degrees from the horizontal then their height is $f(\theta)$ feet from the ground.



(a) What is the equation for $f(\theta)$?

$f(\theta) = 200\sin(\theta) + 400$

(b) What is the radius of the Ferris wheel?

200 feet

(c) What is the height of the center of the Ferris wheel?

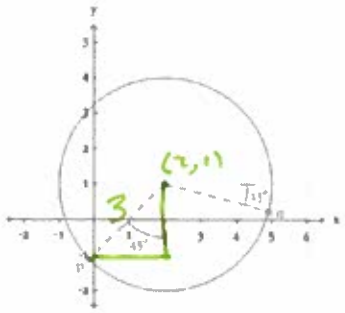
400 feet

2. [4 pts] Consider the circle shown on the right.

(a) What are the coordinates of the point p?

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

$\left(-0.12, -1.12\right)$ +2



(b) What are the coordinates of the point q?

$\left(\approx 4.898, 0.223\right)$ +2

1

$3\sin(15°) = 0.765$

$3\cos(15°) =$

3. [4 pts] An airplane takes off a runway at an 8° angle from the runway. There are 2000 feet of runway remaining once the airplane takes off. How high is the plane once it reaches the end of the runway?

$$\tan(8°) = \frac{h}{2000}$$

$$h = 2000 \tan(8°) = 281.1 \text{ ft}$$