Questions

1. Answer True or False (no work needs to be shown here, fill in directly on this sheet):

$\sin(0) = 1$ ..... T F

$\sin(\pi/3) = \frac{1}{\sqrt{2}}$ ..... T F

$\cos(\pi/6) = \frac{\sqrt{3}}{2}$ ..... T F

$\tan(\pi/2) = \frac{1}{2}$ ..... T F

The domain of $\arctan x$ is $x \in (-\infty, \infty)$ ..... T F

$\arctan(-x) = -\arctan x$ ..... T F

$\arccos(-x) = -\arccos x$ ..... T F

$\cos^{-1}(x) = \arccos x$ ..... T F

$\cos^{-1}(x) = \frac{1}{\cos x}$ ..... T F

The domain of $\arccos(x)$ is $x \in [-1, 1]$ ..... T F

The range of $y = \arccos(x)$ is $y \in [0, \pi]$ ..... T F

$f(x) = \arcsin(x)$ is an even function ..... T F

$\arccos t \to \infty$ as $t \to \infty$ ..... T F

$\arcsin t = \frac{1}{\arccos t}$ ..... T F

$\tan t$ has period π ..... T F

$\tan t = \frac{\sin t}{\cos t}$ ..... T F

$\arcsin t$ has a vertical asymptote at $t = \pi/2$ ..... T F

$y = 2\cos(4x) + \sin(4x)$ is a sinusoid ..... T F

The range of $y = -7\sin\theta$ is $y \in [-7, 7]$ ..... T F

2. Evaluate $\arcsin(-\sqrt{3}/2)$. Show your work.

3. Evaluate $\arctan(-1)$. Show your work.

4. Simplify $\csc(\arctan(x/3))$. Show your work.

5. Simplify $\sec(\arccos(1/2))$. Show your work.

6. Simplify $\arcsin(\sin(11\pi/6))$. Show your work.

7. Simplify $\sin(\arcsin(11\pi/6))$. Show your work.

8. Solve $\sin x = \frac{1}{3}$ for all values of $x \in [0, 2\pi]$. Show your work.

9. Solve $\cos t = \frac{1}{2}$ for all values of t. Show your work.

10. The captain of a ship at sea sights a lighthouse which is 200 feet tall. The captain measures the the angle of elevation to the top of the lighthouse to be 20 degrees. How far is the ship from the base of the lighthouse?