Chapter 6 In-class Practice: Trigonometry

1. For the following values of $sinx$, determine the **exact radian value** of x if $0 \leq x \leq 2\pi$.

   a) $-\frac{\sqrt{3}}{2}$ b) -1

2. For the following, use related acute angle to write an equivalent expression and then evaluate.

   $\cot\left(-\frac{5\pi}{3}\right) =$ _____ = _____

3. Solve the following equations, leave your answer in radian and rounded to 2 decimal places.

   a) $secx = 1.5$ b) $tanx = -2.45$

4. The terminal arm of an angle in standard position passes through the point $(-2, -3)$. Find the radian value of the angle to the nearest hundredth in the interval of $0 \leq x \leq 2\pi$.

5. $f(x) = -2\sin\left[3\left(x - \frac{\pi}{6}\right)\right] - 2$, describe the followings and sketch one full period:

   a) Amplitude:

   b) Period:

   c) Equation of axis:

   d) Phase shift:

6. The average depth of water at the end of a dock is 6 feet. This varies 2 feet in both directions with the tide. Suppose there is a high tide at 4am. If the tide goes from low to high every 6 hours:
   a) Write a cosine function d(t) describing the depth of the water as a function of time with t = 4 corresponding to 4am.
   b) Sketch one period.
   c) Determine the depth of water at 6:45am.
   d) Determine at what two times within one cycle is the tide at a depth of 5.5 feet?