Concepts:

- Angles
  - Initial Side and Terminal Side
  - Standard Position
  - Coterminal Angles

- Measuring Angles
  - Radian Measure vs. Degree Measure
  - Radian Measure as a Distance on the Unit Circle
  - Converting between Radian Measure and Degree Measure
  - Finding the Quadrant Associated with the Terminal Side of an Angle

- Identifying the Point on the Unit Circle that Corresponds to an Angle in Standard Position

- The Trigonometric Functions
  - The Definitions of sin, cos, tan, csc, sec, and cot Based on the Unit Circle
  - Evaluating the Six Trigonometric Functions at Special Angles
  - The Sign of a Trigonometric Function

- The $\frac{\pi}{4} - \frac{\pi}{4} - \frac{\pi}{2}$ or the $45^\circ - 45^\circ - 90^\circ$ Triangle

- The $\frac{\pi}{6} - \frac{\pi}{3} - \frac{\pi}{2}$ or the $30^\circ - 60^\circ - 90^\circ$ Triangle

- Approximating Values of Trigonometric Functions with Your Calculator
  - Parentheses Are Important
  - Radian Mode vs. Degree Mode

- Understanding Trigonometric Notation

- Trigonometric Identities
  - Pythagorean Identities
  - Periodicity Identities
  - Negative Angle Identities
1. Find the radian measure of each of the following:

   (a) 450° angle
   (b) −50° angle

2. (a) Suppose than an angle of measure $t$ radians intersects the unit circle at the point $\left(\frac{-\sqrt{2}}{2}, \frac{-\sqrt{3}}{2}\right)$. What is one possibility for $t$? How do you find all the other possibilities?

   (b) Suppose than an angle of measure $t$ radians intersects the unit circle at the point $\left(\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$. What is one possibility for $t$? How do you find all the other possibilities?

3. Suppose that an angle of measure $\theta$ radians is placed in standard position. Find the location of the terminal side of the angle. **Possibilities:** (A) Quadrant I, (B) Quadrant II, (C) Quadrant III, (D) Quadrant VI, (E) the positive $x$-axis, (F) the negative $x$-axis, (G) the positive $y$-axis, or (H) the negative $y$-axis.

   (a) $\theta = \frac{74\pi}{3}$
   (b) $\theta = -\frac{74\pi}{3}$
   (c) $\theta = 100\pi$
   (d) $\theta = -100\pi$
   (e) $\theta = 21\pi$
   (f) $\theta = -21\pi$
   (g) $\theta = \frac{102\pi}{7}$
   (h) $\theta = -\frac{102\pi}{7}$
4. Evaluate the six trigonometric functions at each of the following angles.
   (a) \( t = \frac{\pi}{3} \)
   (b) \( t = -\frac{9\pi}{4} \)
   (c) \( t = 4\pi \)
   (d) \( t = \frac{17\pi}{6} \)

5. (a) The terminal side of an angle, \( x \), in standard position contains the point \((-5, 9)\). Evaluate the six trigonometric functions at \( x \).
   (b) The terminal side of an angle, \( x \), in standard position contains the point \((11, 4)\). Evaluate the six trigonometric functions at \( x \).

6. Suppose \( t \) is in the fourth quadrant and \( \cos(t) = \frac{1}{5} \). Evaluate the remaining five trigonometric functions on \( t \).

7. Suppose \( t \) is in the first quadrant and \( \sin(t) = \frac{6}{7} \). Find each of the following (give exact answers):
   (a) \( \sin(8\pi + t) \)
   (b) \( \tan(-t) \)
   (c) \( \cos(4\pi - t) \)

8. Use algebra and identities to simplify the expression. Assume all denominators are nonzero.
   (a) \( \frac{\sin(t)}{\tan(t)} \)
   (b) \( \frac{1}{\cos(t)} - \sin(t)\tan(t) \)

9. Solve each of the following equations.
   (a) \( \cos(x) = 0 \)
   (b) \( \sin^3 t - \sin t = 0 \)
   (c) \( \cos^2 t - 2\cos t = -1 \)