

## Precalculus Learning Goals - Week 7

This week we'll review for your exam, and then start our section on **Trigonometry**.

The general goals for the section **Trigonometry** are as follows. At the end of this section, students should be able to:

- *Transition between interpretations of trig functions on triangles, the unit circle, and as graphs.*
- *Compute all trig and inverse trig functions for common values.*
- *Define inverse trig functions and explain their domain and range.*
- *Use trig functions to solve for missing quantities involving triangles and model periodic motion.*
- *Use trigonometric identities to simplify and rewrite expressions.*

**More specifically**, at the end of this week you should be able to:

- Describe angles on the unit circle – locations and coordinates of common angles (multiples of  $\pi/6$  and  $\pi/4$ ), and approximate locations and coordinates of nonstandard angles.
- Explain the relationship between degrees and radians, and develop a conversion formula.
- Solve for missing pieces of information on the unit circle (e.g., given sine and quadrant, find cotangent).
- Define the six basic trigonometric functions on triangles and for any angle in the unit circle.
- Explain why trig functions are periodic.

**Sample Problems.** Here are some sample problems, of the type that you would do to demonstrate that you've learned the material. These are not the only types of problems you may see – they're just a sample.

- What is  $\sin(-\frac{7\pi}{6})$ ?
- What is an angle in  $[\pi, 2\pi]$  that is coterminal with  $\frac{38\pi}{4}$ ?
- Are there any values at which both the tangent and the cotangent function are undefined?
- Suppose  $\cos(t) = -\frac{4}{5}$  and  $\sin(t) = \frac{3}{5}$ . What is  $\cos(-t)$ ?
- On Planet Zook, they measure angles in zooks. A full circle is 200 zooks. Find a formula to convert radians to zooks.