

## Precalculus Learning Goals - Week 10

This week we're going to continue 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 the domain of inverse trig functions.
- Graph inverse trig functions.
- Evaluate or simplify a composition of trig and inverse trig functions.
- Solve more complicated trig equations.

**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.

- Which is bigger,  $\arctan(-20)$  or  $\arctan(0)$ ?
- Solve for  $z$ :  $\tan^2(3z) = 3$ .
- Why is the domain of  $\arcsin x$  different from the domain of  $\arccos x$ ?
- What would be a proper domain for the function  $\csc^{-1}(x)$ ?
- Sketch a rough graph of  $\tan^{-1}(x)$ .
- T or F: Since the domain of  $\sin(x)$  is  $(-\infty, \infty)$ , the range of  $\sin^{-1}(x)$  is  $(-\infty, \infty)$ .