Unit 02: Inverse Trigonometry Functions

Content Area: **Mathematics**
Course(s): **Generic Course**
Time Period: **Semester 1**
Length: **2 weeks**
Status: **Published**

Standards - NJCCS/CCSS

MA.G-SRT.C.8	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
MA.F-TF.A.1	Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.
MA.F-TF.B.5	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.
MA.F-TF.B.7	Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.

Enduring Understandings

Trigonometry is the study of angle measurement, but is primarily algebraic in nature and has practical applications in everyday work and life.

Radians are an alternative form of angle measurement.

Manipulating a trigonometric graph to create a function allows the possibility of higher level problems involving bearings, architecture needs, etc.

Essential Questions

Will students be able to evaluate the six trig. functions and their inverses using the TI graphing calculator/Desmos?

Will students be able to evaluate the six trig. functions and their inverses using radian measurement?

Will students be able to graph $y = \sin x$, $y = \cos x$, $y = \sec x$, and $y = \csc x$ as well as transformations of these graphs?

Will students be able to analyze the graphs of $y = \tan x$ and $y = \cot x$?

Will students be able to apply the reciprocal, negative angle, and Pythagorean identities to balance or simplify expressions and equations?

Will students be able to graph the inverses of $y = \sin x$, $y = \cos x$, $y = \sec x$, $y = \csc x$, $y = \tan x$ and $y = \cot x$?

Knowledge and Skills

- Find angles, given trigonometric functions.
- Find the value of trigonometric functions and inverse functions on a calculator.
- Graph trigonometric functions.
- Graph trigonometric inverses.
- Use basic trigonometric identities to balance or simplify expressions and equations.

Transfer Goals

Recognize and solve practical or theoretical problems involving mathematics, including those for which the solution approach is not obvious, by using mathematical reasoning and strategic thinking.

The inverse of a mathematical function allows for solving complicated equations.

Resources

Precalculus: Graphical, Numerical, Algebraic 10th Edition

Desmos/Amplify

Deltamath

Problem-Attic

Geogebra