19 Topic: Trigonometry

Content Area: **Mathematics**
Course(s): **Algebra 2**
Time Period: **Semester 1**
Length: **2-3 weeks**
Status: **Published**

Standards

MA.K-12.7	Look for and make use of structure.
MA.F-IF.C.7e	Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.
MA.G-SRT.C.8	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
MA.F-TF.A.3	Use special triangles to determine geometrically the values of sine, cosine, tangent for π/3, π/4 and π/6, and use the unit circle to express the values of sine, cosines, and tangent for $\pi - x$, $\pi + x$, and $2\pi - x$ in terms of their values for x, where x is any real number.
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

1. Mathematics is a language consisting of symbols and rules.
2. The same mathematical ideas can be represented concretely or symbolically.
3. There can be different strategies to solve a problem, but some are more effective and efficient than others.

Essential Questions

1. How are triangles and trigonometric functions related?
2. How are trigonometric functions used to solve triangles?
3. Why is it important to know the relationship between a circle and a right triangle?

Knowledge and Skills

Define Trigonometric Terminology

Sketch Angles with Specified Rotations

Understand Co-Terminal Angles

Understand Reference Angles

Understand Coordinate Plane and Quadrants

Understand and Use Pythagorean Theorem

Understand Special Right Triangles – Derivation and Usage

Understand Trigonometry Functions – Sine, Cosine, Tangent, Secant, Cosecant, and Cotangent

Resources

1. McDougal/Littell - Algebra & Trigonometry Structure & Method Book 2
2. Aufmann/Barker/Lockwood - Intermediate Algebra with Applications Sixth Edition
3. Houghton/Mifflin/Harcourt - On Core Mathematics Algebra 2
4. Holt - Algebra 2 with Trigonometry
5. Larson/Boswell - Big Ideas Math: Algebra 2 Texas Edition
6. Khan Academy
7. PurpleMath
8. KutaSoftware
9. CK-12
10. Quizlet
11. Albert I/O
12. Desmos
13. Problem Attic