Review of Algebra 2: Radical Functions

**Learning Target** – The student will be able to:

a. Nth Roots and Simplifying Radicals
b. Add, subtract, and multiply radicals
c. Dividing radicals (includes rationalizing with monomial and binomial denominators)
d. Simplify expressions containing radicals or rational exponents
e. Operations with rational exponents
f. Radicals and rational exponents review
g. Solving radical equation
h. Graphing radical functions

Unit 1: Trigonometry

**Goal:** The student will demonstrate the ability to define trigonometric ratios and apply trigonometry to solve real-world problems.

**Learning Target** – The student will be able to:

a. Solve problems involving right triangles and special right triangles (30-60-90 and 45-45-90)
b. Define and evaluate the six trigonometric ratios
c. Solve triangles using trigonometric ratios
d. Define radian measure and convert angle measures between degrees and radians
e. Define the trigonometric functions in terms of the unit circle
f. Develop basic trigonometric identities
g. Use trigonometric functions model and solve real-world problems, including right triangle relations, arc length and speed.

Unit 2: Trigonometric Graphs

**Goal:** The students will demonstrate the ability to sketch and analyze trigonometric graphs and apply trigonometry to solve real-world problems.

**Learning Target** – The student will be able to:

a. Graph the sine, cosine, and tangent functions
b. Identify the domain and range of a basic trigonometric function
c. Graph transformations of the sine, cosine, and tangent graphs
d. Identify and sketch the period, amplitude, and phase shift of the cosine, sine, and tangent functions.
e. Use trigonometric graphs to model and solve real-world problems.

**Unit 3: Trigonometric Equations and Identities**

**Goal:** The student will demonstrate the ability to solve trigonometric equations and use trigonometric identities.

**Learning Target** – The student will be able to:

a. Solve trigonometric equations graphically and algebraically
b. Write a trigonometric function to model and solve real-world problems
c. Apply strategies to prove identities
d. Use the addition and subtraction identities for sine, cosine, and tangent functions
e. Solve triangles using the Law of Cosines
f. Solve triangles using the Law of Sines
g. Prove the Law of Cosines and Law of Sines

**Unit 4: Exponential. And Logarithmic Functions**

**Goal:** The student demonstrates the ability to use the law of exponents and logarithms and apply them to real-world situations.

**Learning Target** – The student will be able to:

a. Graph and identify transformations of exponential functions, including the number e
b. Use exponential functions to model and solve real-world problems
c. Graph and identify transformations of logarithmic functions
d. Evaluate logarithms to any base with and without a calculator
e. Apply properties and laws of logarithms to simplify and evaluate expressions
f. Solve exponential and logarithmic equations
g. Use exponential, logarithmic, and logistic models to solve real-world problems.

**Unit 5: Sequences and Series**

**Goal:** The student will demonstrate the ability to identify and evaluate arithmetic and geometric sequences and series

**Learning Target** – the student will be able to:

a. Identify and graph arithmetic sequence
b. Write an arithmetic sequence recursively and explicitly
c. Use summation notation
d. Find the nth term and the nth partial sum of an arithmetic sequence
e. Recognize a geometric sequence
f. Write a geometric sequence recursively and explicitly
g. Find partial sums of geometric sequence
h. Find the sum of an infinite geometric series