

Options EHS Algebra 2B 2020		Scope and Sequence
Unit	Lesson	Objectives
<b>Polynomials</b>		
	Addition and Subtraction of Polynomials	
		Perform addition and subtraction of polynomials.
	Multiplication of Polynomials	
		Perform multiplication of polynomials.
	Sum and Difference of Two Cubes	
		Recognize a perfect cube and find its cube root.
		Factor the sum or difference of two cubes.
	Factoring Polynomials Completely	
		Analyze the structure of a polynomial to write it in completely factored form.
	Division of Polynomials	
		Use long division to find quotients of polynomials
		Use inverse operations to check the result of polynomial division
	Simplifying Polynomial Expressions	
		Simplify expressions involving operations with polynomials.
	Composition of Polynomial Functions	
		Write the composition of polynomial functions.
		Evaluate the composition of polynomial functions.
	Graphs of Polynomial Functions	
		Identify the key features of a polynomial function from a given graph.
		Describe the key features of a polynomial function.
	Synthetic Division and the Remainder	

**Unit Lesson****Objectives**

Theorem

Use synthetic division to divide a polynomial by a linear factor.

Apply the remainder theorem.

The Rational Roots Theorem

Use the rational root theorem to determine possible roots of a polynomial function.

Determine the roots of and factor a polynomial function.

The Fundamental Theorem of Algebra

Apply the fundamental theorem of algebra to determine the number of roots of a polynomial function.

Use the complex conjugate theorem to factor and solve polynomial equations.

Writing Polynomial Functions from Complex Roots

Write polynomial functions from complex roots.

Graphing Polynomial Functions

Graph polynomial functions using key features.

**Rational Functions**

Negative Exponents

Evaluate numeric expressions using laws of integer exponents.

Simplify single-variable expressions using laws of integer exponents.

Simplifying Rational Expressions

Simplify rational expressions using laws of integer exponents.

Multiplying and Dividing Rational Expressions

Perform multiplication and division of rational expressions.

**Unit Lesson****Objectives**

Adding and Subtracting Rational Expressions

Perform addition and subtraction of rational expressions.

Simplify complex rational expressions containing sums or differences.

Rational Equations

Solve rational equations and determine extraneous solutions.

Use rational equations to model and solve real-world problems.

Determine the reasonableness of a solution to a rational equation.

Vertical Asymptotes of Rational Functions

Determine the vertical asymptotes and holes in the graph of a rational function having the x-axis as its only horizontal asymptote.

Solve problems involving inverse variation.

Graphing Rational Functions

Determine the horizontal asymptotes of a rational function.

Graph rational functions that have only vertical or horizontal asymptotes.

Unit Test

**Radical Functions**

Graphing Radical Functions

Relate transformations to the graphs of square root and cube root functions to their parent function.

Determine the domain and range of square root and cube root functions.

Simplifying Perfect Roots

Identify numbers and variable expressions that are perfect powers.

Simplify perfect roots.

**Unit Lesson****Objectives**

Simplifying Nonperfect Roots

Simplify nonperfect roots without rationalizing.

Rational Exponents

Evaluate numeric expressions using properties of rational exponents.

Simplify algebraic expressions using properties of rational exponents.

Adding and Subtracting Radicals

Identify like radicals.

Add and subtract radical expressions.

Multiplying Radicals

Perform multiplication of radical expressions.

Dividing Radicals

Perform division of radical expressions, rationalizing the denominator when necessary.

Radical Equations and Extraneous Roots

Model and solve mathematical and real-world problems using radical equations, and determine extraneous roots.

Solving Equations Containing Two Radicals

Solve equations containing two radicals, and determine extraneous solutions.

Unit Test

**Exponential and Logarithmic Functions**

Graphing Exponential Functions

Identify exponential functions.

Determine the domain and range of exponential functions.

Graph exponential functions.

**Unit Lesson****Objectives**

Solving Exponential Equations by Rewriting the Base

Solve exponential equations by rewriting bases.

Graphing Logarithmic Functions

Identify logarithmic functions.

Determine the domain and range of logarithmic functions.

Identify and analyze the graphs of logarithmic functions.

Evaluating Logarithmic Expressions

Evaluate logarithmic expressions by converting between logarithmic and exponential forms.

Solve logarithmic equations by converting between logarithmic and exponential forms.

Evaluate common logarithms using a calculator.

Properties of Logarithms

Evaluate, expand, and simplify logarithmic expressions using properties of logarithms.

Solving Equations using Properties of Logarithms

Apply properties of logarithms to solve logarithmic equations.

Determine extraneous solutions of logarithmic equations.

Base e

Apply properties of logarithms and exponents to solve exponential and logarithmic equations having base e.

Analyze exponential and logarithmic functions in base e to determine key features of the graph.

Determine the domain and range of exponential and logarithmic functions in base e.

Unit Test

**Trigonometric Functions**

**Unit Lesson****Objectives**

Angles in Standard Position

Identify characteristics of angles in standard position.

Determine angles that are coterminal.

Radian Measure

Convert between degree and radian measure.

Use the definition of radian measure to calculate arc lengths, radii, and angle measures.

Right Triangle Trigonometry

Use the Pythagorean theorem, and the trigonometric functions and their inverses to solve right triangles.

Use special right triangle relationships to solve right triangles.

The Unit Circle

Find the sine, cosine, and tangent values of angle measures using the unit circle.

Compare sine, cosine, and tangent values for angles having the same reference angle.

Unit Test

**Cumulative Exam**

Cumulative Exam Review

Cumulative Exam