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## Options EHS Algebra 2B-OR

## Scope and Sequence

## Unit Lesson

Objectives

## 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.
Quadratic in Form Polynomials
Identify fourth degree equations that are quadratic in form and use an appropriate u-substitution.
Solve fourth degree equations that are quadratic in form.
Graphing Polynomial Functions
Graph polynomial functions using key features.
Solving Polynomial Equations using Technology

Use technology to solve or approximate solutions of one-variable polynomial equations.
Unit Test

## 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.
Adding and Subtracting Rational

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## 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.
Rational Inequalities
Solve rational inequalities algebraically and determine extraneous solutions.
Modeling with Rational Functions
Model and solve real-world problems using rational functions.

## 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.

| Options EHS Algebra 2B-OR | Scope and Sequence |
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| Unit Lesson | Objectives |
| Simplifying Perfect Roots |  |
|  | Identify numbers and variable expressions that are perfect powers. |
|  | Simplify perfect roots. |
| 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 |  |

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## Scope and Sequence

Unit Lesson
Solving Exponential Equations by Rewriting
the Base 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.
Solving Logarithmic Equations using Technology

Rewrite logarithmic expressions using the change of base algorithm.
Solve a one-variable equation containing logarithms by transforming it into a system of equations.
Solving Exponential and Logarithmic Equations

Objectives
Identify exponential functions.
Determine the domain and range of exponential functions.
Graph exponential functions.

Modeling with Exponential and Logarithmic
Equations
Solve exponential and logarithmic equations using inverses, properties, and algorithms.

Model and solve real-world problems using exponential and logarithmic functions.
Geometric Series
Find sums of finite and infinite geometric series.
Apply geometric series to solve mathematical and real-world problems.

## Unit Test

Unit Lesson
Objectives
More with Relations and Functions
Absolute Value Functions
Analyze absolute value functions to determine key features of the graph.
Model and solve mathematical and real-world problems with absolute value functions.
Piecewise Defined Functions
Graph piecewise defined functions.
Evaluate piecewise defined functions.
Determine the domain, range, and continuity of piecewise defined functions.
Step Functions
Evaluate step functions.
Analyze step functions to determine key features of the graph.
Use step functions to model real-world problems.
Domain and Range

Analyzing Compositions of Functions
Find compositions of functions from a variety of function families.
Determine the domain and range of the composition of functions.
Modeling with Functions
Find the equation of a function that best models a data set.
Use function models to solve problems.

## Unit Test <br> Cumulative Exam

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Cumulative Exam Review
Cumulative Exam


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