

Algebra 2



The following learning targets represent the major concepts studied and assessed in this course.

Semester 1

Unit A **Functions**

- A1** Understand function notation and evaluate a function given function notation.
- A2** Identify and interpret key characteristics of functions including domain/range, end behavior, increasing/decreasing intervals, turning points, minimums, maximums, and zeroes.
- A3** Describe the effect of transformation algebraically and graphically, including translations, reflections, and dilations.

Unit B1 **Quadratics part 1**

- B1.1** Graph quadratic equations and recognize characteristics of graphs.
- B1.2** Solve quadratics using factoring and graphing techniques.

Unit B2 **Quadratics part 2**

- B2.1** Solve quadratic equations using square roots, including imaginary solutions.
- B2.2** Perform the operations of addition, subtraction, multiplication, and division of complex numbers.
- B2.3** Solve quadratic equations by completing the squares.
- B2.4** Solve quadratic equations by the quadratic formula.
- B2.5** Solve systems of equations with non linear equations.

Unit C **Polynomial Functions**

- C1** Create a sketch of a polynomial function from an equation and create a polynomial equation from a graph.
- C2** Identify key features of polynomials (zeros, multiplicity, end behavior, y-intercept, local minimums and maximums, turning points, transformations).
- C3** Apply the fundamental theorem of algebra to be able to state the number of real and complex zeros.

Unit D **Polynomial Equations**

- D1** Perform the the operations of addition, subtraction and multiplication of polynomials.
- D2** Factor polynomials including difference and sum of two cubes, grouping and quadratic form.
- D3** Divide polynomials.
- D4** Solve polynomial equations by factoring and/or applying the Remainder Theorem.

Semester 2

Unit E **Rational Exponents and Radical Functions**

- E1** Perform operations and simplify/rationalize a radical expression.
- E2** Analyze graphs of radical functions to describe their transformations, domain, and range.
- E3** Find and verify the inverse of a function.
- E4** Solve a radical equation and identify extraneous solutions.

Unit F **Exponential and Logarithmic Functions and Equations**

- F1** Analyze the graphs of exponential and logarithmic functions to describe transformations, domain, range, and asymptotes.
- F2** Use exponential and logarithmic equations to solve application problems.
- F3** I can solve exponential and logarithmic equations.

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The following learning targets represent the major concepts studied and assessed in this course.

Unit G
Rational Functions and
Equations

- G1** Graph rational functions and describe their transformations.
- G2** Simplify rational expressions by performing operations (add, subtract, multiply, divide) or by using exponent rules.
- G3** Solve rational equations and identify extraneous solutions.

Unit H
Statistics

- H1** Determine whether a specified model is consistent with a given data set.
- H2** Use data from a sample survey to estimate a population mean or proportion and recognize the meaning of the margin of error in these estimates.
- H3** Given a data set that is known to be normally distributed, predict what percentage of the data will be above or below a given value that is a multiple of standard deviations above or below the mean.