

Algebra 2 Parent Guide

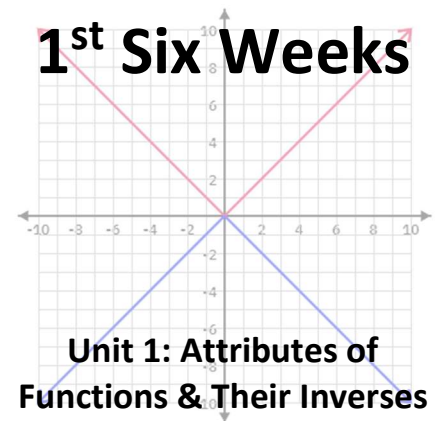
Unit 1 Concepts:

In unit 1, students will be introduced to composition of functions and inverses. They will study absolute value functions and equations in depth. They will also learn to describe the attributes of functions including domain and range, transformations, the proper use of inequalities, interval notation, and set notation.

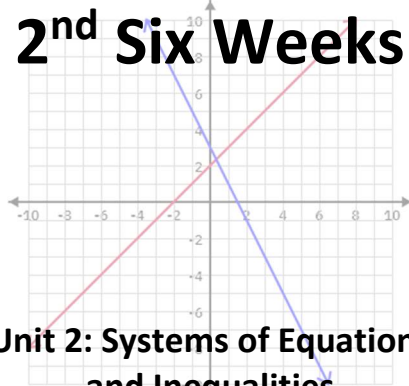
Learning Goals:

Students will understand relations and functions can be expressed numerically, algebraically, graphically, and verbally. They will see how functions are categorized into families and that the inverse function reverses the action of the original function.

Why? – This unit will teach students how to model and or analyze real world applications involving quantitative relationships.



2nd Six Weeks



Unit 2 Concepts:

In unit 2, students solve systems of three equations in three variables using substitution, Gaussian elimination, and technology with matrices. They will also write and solve systems of two inequalities with two variables.

Learning Goals:

Students will understand systems of equations can be solved using a table, graphing, substitution, elimination, or by using a matrix. They will also learn that systems of inequalities can be solved by graphing.

Why? – There are a variety of representations of linear systems of equations that are used to illustrate and solve real world problems such as when two quantities will be worth the same amount.

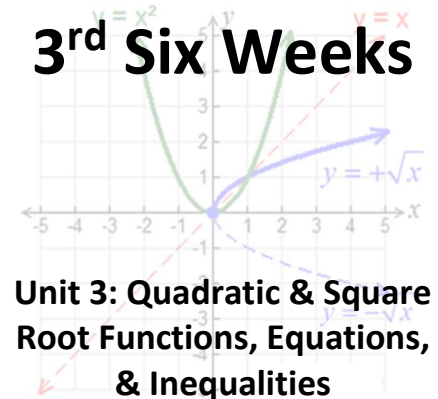
Unit 3 Concepts:

In unit 3 students will study quadratic and square root functions, their relationships as inverses, their transformations, and methods for solving both. They will use the same skills and apply them to inequalities.

Learning Goals:

Students will understand that graphing, factoring, completing the square, and the quadratic formula can be used to solve quadratics. Similarly, to solve quadratic inequalities, students can do this algebraically, graphically, or from a table.

Why? – Understanding quadratic functions can help students comprehend the maximum or minimum amount of a product needed to produce the greatest profit, or how far away a projectile travels given a certain path.



Unit 4 Concepts:

Students will add, subtract, and multiply polynomials as well as simplifying radicals. They will use multiple factoring methods such as long division and synthetic division to factor polynomials of degree three and four.

Learning Goals:

In unit 4, students will understand that polynomials can be classified by degree which determines end behavior and number of roots. That finding the zeros can help to factor, graph, and solve polynomials. And that polynomials can be divided using long or synthetic division. Additionally, students will see that real number properties are used to simplify radicals, rational exponents and can be used in place of a radical.

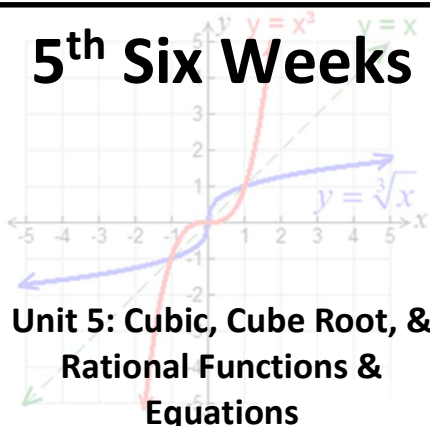
Why? – The characteristics of polynomial functions including their representations, power, and radical functions are foundational concepts if a student plans to go further in math beyond Algebra 2.

4th Six Weeks

$$\begin{aligned} & (2x+3)(3x^2-x+4) \\ & = \{2x(3x^2-2x+2x+4)\} + \{3(3x^2-3x+3\cdot4)\} \\ & = \{6x^3-2x^2+8x\} + \{9x^2-3x+12\} \\ & = 6x^3+7x^2+5x+12 \end{aligned}$$

Unit 4: Number & Algebraic Methods

5th Six Weeks



Unit 5: Cubic, Cube Root, & Rational Functions & Equations

Unit 5 Concepts:

Unit 5 focuses on cubic and cube root functions, their relationships as inverses, graphs, and transformations. Students will solve cube root and rational equations. They will study inverse variation and rational functions including asymptotes, graphs, and transformations. They will perform all operations on rational expressions.

Learning Goals:

Students will see how boundaries on domain and range of a rational functions are result of discontinuities in the graph. Furthermore, that arithmetic operations with fractions translate to algebraic operations with rational functions, and transformation rules remain the same across all functions discussed.

Why? – Knowing how characteristics of rational functions and their representations are similar to that of other functions help students transfer knowledge of functions giving them a deeper understanding of their properties.

Unit 6 Concepts:

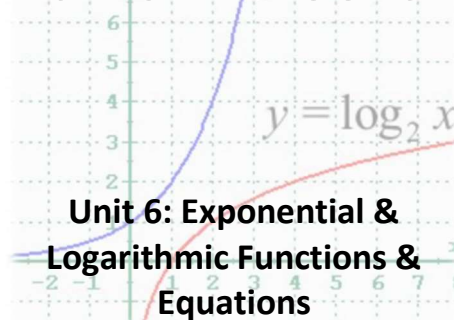
In unit 6, students thoroughly study exponential and logarithmic functions and equations. They will formulate equations representing real-world situations, solve equations, transform functions, and convert between logarithmic and exponential form, which are inverses of each other.

Learning Goals:

Students will investigate how if the numbers in a list represent a pattern, a rule can be created to relate each number to its numerical position. They will also see how exponential and logarithmic functions behave the same as other functions when graphically transformed.

Why? – Understanding properties of exponential and logarithmic functions can help students make predictions about populations and concepts such as a medical outbreak like swine flu.

6th Six Weeks



Unit 6: Exponential & Logarithmic Functions & Equations

Questions? Please contact your Algebra 2 math teacher. **Additional Support:** We recommend Khan Academy and Tutor.com and remember campus tutoring is also available.