



Algebra I

3rd Grading Period (2 weeks)

Power Objective:

- Evaluate exponentials and exponential functions. (P.O. #5)

Academic Vocabulary:

- base
- exponent
- power
- radical
- rational exponent
- index
- exponential function
- square root
- compound interest
- decay factor
- growth factor
- exponential decay
- exponential growth
- domain
- range

Exponents and Exponential Functions

Enduring Understandings:

- The idea of exponents can be extended to include zero and negative exponents.
- Properties of exponents make it easier to simplify products or quotients of powers with the same base or powers raised to a power or products raised to a power.
- You can use rational exponents to represent radicals.
- The parent of the family of exponential functions is $y=ab^x$. The independent variable is an exponent. This family of functions can model growth or decay of an initial amount.
- In a geometric sequence, the ratio of any term to its preceding term is a constant value.
- [See below for more enduring understandings.](#)

Essential Questions:

- How can you represent numbers less than one using exponents?
- How can you simplify expressions involving exponents?
- What are the characteristics of exponential functions?
- How are exponential functions used to solve real-world problems?
- How are radical expressions represented?
- What are the characteristics of square root functions?
- How can you solve a radical equation?
- How are radical equations used to solve real-world problems?

Enduring Understandings:

- Operations can be performed with radical expressions and radical expressions can be simplified using the multiplication and division properties of square roots.
- Square root functions can be graphed by plotting points or using translations of the parent square root function.
- Some radical equations can be solved by squaring both sides and testing the equation.
- Exponential functions are important because they can be used to describe real-world situation involving population growth, decay of radioactive materials (half-life), compound interest.