

## Powers, Roots, and Radicals

**MA2A1. Students will explore exponential functions.**

- a. Extend properties of exponents to include all integer exponents.

**MA2A2. Student will explore inverses of function.**

- a. Discuss the characteristics of functions and their inverses, including one-to-oneness, domain, and range.
- b. Determine inverses of linear, quadratic, and power functions and functions of the form  $f(x) = \frac{a}{x}$ , including the use of restricted domains.
- c. Explore the graphs of functions and their inverses.
- d. Use composition of functions and their inverses.

**MA2A4. Students will explore logarithmic functions as inverses of exponential functions.**

- a. Define and understand the properties of nth roots.
- b. Extend properties of exponents to include rational exponents.

**MA2A5. Students will solve a variety of equations and inequalities.**

- a. Solve a variety of types of equations by appropriate means choosing among mental calculation, pencil and paper, or appropriate technology.

Mon	Feb 27	3.1	Math 3 Textbook Nth Roots and Rational Exponents	p. 112	1 - 33 all
Tue	Feb 28	3.2	Math 3 Textbook Properties of Rational Exponents	p. 115	1 - 33 all
Wed	Feb 29		Practice 3.1 and 3.2		Worksheet
Thur	Mar 1	Quiz	3.1 - 3.2 Quiz Vocabulary Due		
Fri	Mar 2	4.2	Math 2 Textbook Perform Function Operations and Composition	p. 115	1 - 19 all
Mon	Mar 5	4.3	Math 2 Textbook Use Inverse Functions	p. 119	2 - 18 all
Tue	Mar 6	3.3	Math 3 Textbook Quiz over 3.1, 3.2, 4.2, 4.3  Graphing square and cube root functions	P 121	2 - 20 even

Wed	Mar 7	3.4	Math 3 Textbook Solving Radical Equations	P 125	2 - 28 even
Thur	Mar 8	RVW	Review for Unit Test Practice Test		
Fri	Mar 9		Unit Test Notebook Check Essential Questions Due		

### Essential Questions

- How are nth roots converted from radical notation to rational exponents and vice versa? Give an example.
- How are nth roots evaluated using radical notation? Give two examples.
- How are properties of rational exponents used to evaluate expressions? Give two examples.
- How are properties of rational exponents used to simplify expressions? Give two examples.
- How are operations performed on functions (give an example of each type)?
- How are composition of functions determined? Give an example.
- How is the inverse of a function found? Give an example.
- How can it be determined if the inverse of a function is itself a function?
- How are cube root and square root functions graphed? Show an example of each.
- How is a radical (rational exponent) equation solved? Show 2 examples.
- What is an extraneous solution? How can solutions be checked for this case?

### Vocabulary

- Index of a radical
- nth root of a radical
- simplest form
- like radicals
- power function
- domain of a function
- composition of functions
- inverse relation
- inverse function
- radical functions
- extraneous solution
- Radical Equations
- Radical conjugates

Answered Essential Questions with an example are due on Unit Test day.

**\*\*The above daily schedule is subject to change\*\***