Unit Twelve - Rational Expressions and Equations

Content Area: **Mathematics**
Course(s): **Algebra 7**
Time Period: **June**
Length: **2 weeks**
Status: **Published**

Transfer

Big Idea: Radical Expression & Equations

Enduring Understandings

Samples

A single quantity may be represented by many different expressions.

Functions can be represented in a variety of ways, such as graphs, tables, equations, or words. Each representation is particularly useful in certain situations.

The numbers and types of solutions vary predictably, based on the type of equation.

Essential Questions

Samples

How does knowing perfect squares help in simplifying radicals?

What similarities and differences exist between operations with radical expressions and operations with polynomials expressions?

Critical Knowledge and Skills

Vocabulary

Vocabulary

Extraneous Solution, Hypotenuse, Leg, Like Radicals, Pythagorean Theorem, Radical Expression, Radical Equation, Square Root Function, Unlike radicals

Learning Objectives

Bloom's Taxonomy

Solve problems using Pythagorean Theorem (8.G.SRT.6,7,8)

Identify right triangles (8.G.SRT.6,7,8)

Simplify sums, differences, products and quotients of radical expressions (A.REI.2)

Solve equations containing radicals (A.REI.2)

Identify extraneous solutions (A.REI.2)

Graph and translate square root functions (F.IF.7.b)

Resources

Khan Academy: Rational relationships

Desmos: Rational Functions Sign Analysis

Standards

MA.F-IF.C	Analyze functions using different representations
MA.F-IF.C.7b	Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.
MA.A-REI.A	Understand solving equations as a process of reasoning and explain the reasoning
MA.A-REI.A.2	Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

MA.8.G.B	Understand and apply the Pythagorean Theorem.
MA.8.G.B.6	Explain a proof of the Pythagorean Theorem and its converse.
MA.8.G.B.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
MA.8.G.B.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.