Unit 10 - Radical Expressions and Equations

Content Area: **Mathematics**
Course(s): **Algebra 8**
Time Period: **May**
Length: **3 weeks**
Status: **Published**

Transfer

Big Idea: Radical Expression & Equations

Essential Questions

How does knowing perfect squares help in simplifying radicals?

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

Enduring Understandings

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.

Standards in Mathematics

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.
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.G-SRT.C	Define trigonometric ratios and solve problems involving right triangles
MA.G-SRT.C.6	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
MA.G-SRT.C.7	Explain and use the relationship between the sine and cosine of complementary angles.
MA.G-SRT.C.8	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
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.

Critical Knowledge and Skills

Vocabulary

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

Learning Objectives

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: Radical Relationships

NCTM Illuminations: What's the Point

3 Act Math: Taco Cart