

# 07 Topic: Irrational & Fractional Exponents

Content Area: **Mathematics**  
Course(s): **Algebra 2**  
Time Period: **Semester 1**  
Length: **2 weeks**  
Status: **Published**

## Standards

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MA.N-RN.A.1	Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.
MA.N-RN.A.2	Rewrite expressions involving radicals and rational exponents using the properties of exponents.
MA.N-RN.B.3	Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.
MA.K-12.6	Attend to precision.
MA.K-12.8	Look for and express regularity in repeated reasoning.

## Enduring Understandings

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1. Mathematics is a language consisting of symbols and rules.
2. The same mathematical ideas can be represented concretely or symbolically.
3. There can be different strategies to solve a problem, but some are more effective and efficient than others.

## Essential Questions

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How will the student perform operations with radical expressions with different indexes and expressions with fractional exponents?

Does the order of evaluating the numerator and denominator matter?

## Knowledge and Skills

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- Simplify radical expressions
- Simplify with rational exponents

- Simplify radicals and expressions with different root indexes
- Multiply radical expressions with different root indexes
- Add and Subtract radical expressions
- Divide and rationalize with monomial and binomial denominators
- Simplify irrational expressions
- Simplify expressions with rational exponents

## **Transfer Goals**

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Using mathematical reasoning and strategic thinking can allow for practical solutions of many problems.

Often unique vocabulary and implementation methods are needed to solve problems.

## **Resources**

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1. McDougal/Littell - Algebra & Trigonometry Structure & Method Book 2
2. Aufmann/Barker/Lockwood - Intermediate Algebra with Applications Sixth Edition
3. Houghton/Mifflin/Harcourt - On Core Mathematics Algebra 2
4. Holt - Algebra 2 with Trigonometry
5. Larson/Boswell - Big Ideas Math: Algebra 2 Texas Edition
6. [Khan Academy](#)
7. [PurpleMath](#)
8. [KutaSoftware](#)
9. [CK-12](#)
10. [Quizlet](#)
11. [Albert I/O](#)
12. [Desmos](#)

### 13. [Problem Attic](#)