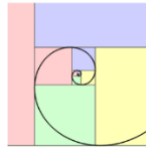




8th Grade Unit 5: Irrationals, Integer Exponents & Scientific Notation



Overview:

In this fifth unit of eighth-grade math, students will solve problems involving irrational numbers, radical and integer exponents, and scientific notation. Students will extend their knowledge of numerical reasoning and real numbers to include irrational numbers, develop an understanding of the properties of exponents, and perform operations with numbers expressed in scientific notation.

Learning Targets:

In Unit 5, students will:

- Distinguish between rational and irrational numbers using decimal expansion.
- Convert a decimal expansion which repeats eventually into a rational number.
- Approximate irrational numbers to compare the size of irrational numbers, locate them approximately on a number line, and estimate the value of expressions.
- Apply the properties of integer exponents to generate equivalent numerical expressions.
- Use square root and cube root symbols to represent solutions to equations.
- Use numbers expressed in scientific notation to estimate very large or very small quantities, and to express how many times as much one is than the other.
- Add, subtract, multiply, and divide numbers expressed in scientific notation, including problems where both decimal and scientific notation are included.
- Recognize that $x^2 = p$ (where p is a positive rational number and $|x| \leq 25$) has two solutions and $x^3 = p$ (where p is a negative or positive rational number and $|x| \leq 10$) has one solution.
- Evaluate square roots of perfect squares ≤ 625 and cube roots of perfect cubes ≥ -1000 and ≤ 1000 .

Key Vocabulary: (linked to GA DOE Interactive Glossary)

Addition Property of Equality	Additive Inverse	Algebraic Expression	Cube Root
Decimal Expansion	Equation	Evaluate an Algebraic Expression	Exponent
Exponential Notation	Inverse Operation	Irrational Number	Like Terms
Linear Equation in One Variable	Multiplication Property of Equality	Multiplicative Inverse	Negative Exponent Rule
Perfect Cube	Perfect Square	Properties of Integer Exponents	Product Rule
Power Rule	Power of Product Rule	Power of Quotient Rule	Quotient Rule
Radical	Rational number	Scientific Notation	Significant Digits
Solution	Square root	Variable	Zero Exponent Rule

Supporting Resources:

<http://ctlslearn.cobbk12.org/>

<https://gavirtual.instructure.com/courses/34331>

[Exponents](#)

[Cube Roots](#)

[Powers of Zero](#)

[Scientific Notation](#)

[Multiplying Exponents](#)

[Dividing Exponents](#)

[Powers of Products and Quotients](#)

[Negative Exponents](#)

[Square Roots](#)

