



Rational Exponents and Radicals

Today's Standard

HSN.RN.A1 - 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. For example, we define $5^{(1/3)}$ to be the cube root of 5 because we want $(5^{(1/3)})^3 = 5^{(1/3 * 3)}$ to hold, so $(5^{(1/3)})^3$ must equal 5.

Real-World Applications for this Standard

Calculating compound interest; Modeling population growth; Engineering calculations involving roots and powers; Physics problems involving exponential decay; Computer algorithms for cryptography

Today I Learned

Today, we learned about rational exponents. Rational exponents are a way to write roots, like the square root or cube root, using exponents that are fractions.

Common Stumbling Blocks

Some students think that rational exponents are very different from whole number exponents. Others mix up rational exponents with fractions in front of numbers.

Quiz Me

- What is a rational exponent?
- How do you write the cube root of 8 using an exponent?
- Can you give an example of a rational exponent?
- What is the difference between a rational exponent and a fraction?
- Why do we use rational exponents?

Help Me

Rational exponents help us solve problems in the real world. For example, they are used in calculating interest in banks, in science to measure growth, and in computers to keep information safe.