

# Rational Exponents



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### Preliminaries

- Integer Exponents
- Laws of Exponents

### Objectives

- Define Rational Exponents

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## Recap

## Rational Exponents

If  $b > 0$ , then

$$b^{\frac{m}{n}} = (\sqrt[n]{b})^m$$

$$= \sqrt[n]{b^m}$$

$$8^{\frac{1}{3}} = \sqrt[3]{8} = 2$$

$$8^{\frac{2}{3}} = (\sqrt[3]{8})^2 = 2^2 = 4$$

$$8^{\frac{2}{3}} = \sqrt[3]{8^2} = \sqrt[3]{64} = 4$$

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## Recap

If  $b > 0$ , then

$$\begin{aligned} b^{\frac{m}{n}} &= \left(\sqrt[n]{b}\right)^m \\ &= \sqrt[n]{b^m} \end{aligned}$$