



## 8.3 Properties of Radicals

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- Need To Know
- Quotient Rule for Square Roots
- Simplifying radical expressions
  1. With Fractions
  2. By Rationalizing the Denominator



## Quotient Rule for Square Roots

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- If A and B are real numbers ( $B \neq 0$ ), then
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## Simplify Radical Expressions

- Simplify:

$$\frac{\sqrt{18}}{\sqrt{32}}$$

$$\frac{\sqrt{35t^{11}}}{\sqrt{5t^5}}$$



## Simplify Radical Expressions

- Simplify:

$$-\sqrt{\frac{25}{64}}$$

$$\sqrt{\frac{10z^9}{18z^5}}$$



## The Idea of a Simplified Radical

Which fraction is the simplest?

$$\frac{\sqrt{5}}{\sqrt{3}} = \frac{2.236067977\dots}{1.732050808\dots}$$

$$\frac{5}{\sqrt{3}} = \frac{5}{1.732050808\dots}$$

$$\frac{\sqrt{5}}{3} = \frac{2.236067977\dots}{3}$$



## Rationalizing Denominators

- Goal: Change the fraction to make the denominator come out "nice".

$$\frac{\sqrt{5}}{\sqrt{3}} =$$



## Guidelines for Simplification

1. Remove \_\_\_\_\_
2. Remove \_\_\_\_\_
3. Remove \_\_\_\_\_

■ Examples:

$$\frac{7}{\sqrt{2}}$$

$$\frac{\sqrt{4}}{\sqrt{27}}$$



## Guidelines for Simplification

1. Remove fractions from radicals
2. Remove perfects for radicals
3. Remove radicals from denominators

■ Examples:

$$\sqrt{\frac{5}{x}}$$

$$\sqrt{\frac{7t^3}{32t}}$$

end