

REVIEW: Simplifying Square Roots

Name _____

Key Concept and Vocabulary

Product Property of Square Roots

Algebra: $\sqrt{xy} = \sqrt{x} \cdot \sqrt{y}$, where $x, y \geq 0$

Numbers: $\sqrt{4 \cdot 3} = \sqrt{4} \cdot \sqrt{3} = 2\sqrt{3}$



Quotient Property of Square Roots

Algebra: $\sqrt{\frac{x}{y}} = \frac{\sqrt{x}}{\sqrt{y}}$, where $x \geq 0$ and $y > 0$

Numbers: $\sqrt{\frac{7}{9}} = \frac{\sqrt{7}}{\sqrt{9}} = \frac{\sqrt{7}}{3}$

Skill Examples

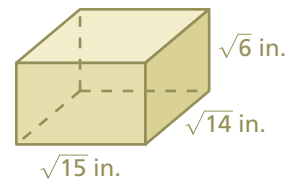
$$\begin{aligned} 1. \quad \sqrt{18} &= \sqrt{9 \cdot 2} \\ &= \sqrt{9} \cdot \sqrt{2} \\ &= 3\sqrt{2} \end{aligned}$$

$$\begin{aligned} 2. \quad \sqrt{75} &= \sqrt{25 \cdot 3} \\ &= \sqrt{25} \cdot \sqrt{3} \\ &= 5\sqrt{3} \end{aligned}$$

$$\begin{aligned} 3. \quad \sqrt{\frac{5}{36}} &= \frac{\sqrt{5}}{\sqrt{36}} \\ &= \frac{\sqrt{5}}{6} \end{aligned}$$

Application Example

4. Find the volume of the rectangular prism.



$$\begin{aligned} V &= Bh \\ &= (\sqrt{15})(\sqrt{14})(\sqrt{6}) \\ &= \sqrt{15 \cdot 14 \cdot 6} \\ &= \sqrt{1260} \\ &= \sqrt{36 \cdot 35} \\ &= \sqrt{36} \cdot \sqrt{35} \\ &= 6\sqrt{35} \end{aligned}$$

- ∴ The volume of the rectangular prism is $6\sqrt{35}$ cubic inches.

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Check your answers at BigIdeasMath.com.

Simplify the expression.

5. $\sqrt{80} = \underline{4\sqrt{5}}$

6. $\sqrt{216} = \underline{6\sqrt{6}}$

7. $\sqrt{92} = \underline{2\sqrt{23}}$

8. $\sqrt{245} = \underline{7\sqrt{5}}$

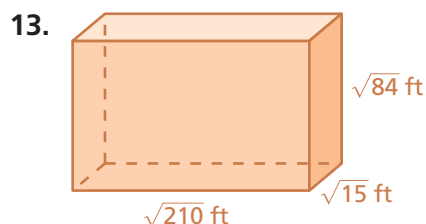
9. $\sqrt{\frac{13}{25}} = \underline{\frac{\sqrt{13}}{5}}$

10. $\sqrt{\frac{29}{64}} = \underline{\frac{\sqrt{29}}{8}}$

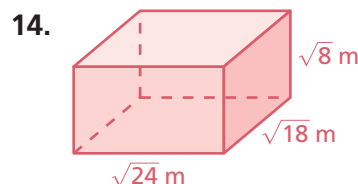
11. $\sqrt{\frac{17}{100}} = \underline{\frac{\sqrt{17}}{10}}$

12. $\sqrt{\frac{40}{49}} = \underline{\frac{2\sqrt{10}}{7}}$

Find the volume of the rectangular prism.



$V = \underline{210\sqrt{6}}$



$V = \underline{24\sqrt{6}}$