

5.7: Simplify Radicals

“I WILL ...

Simplify and Operate Radicals.”

I. Definitions

A. Square Roots are a number that when squared (multiplied by itself) is equal to the given number

B. Radicals are a way to symbolized a number being rooted

C. _____ \sqrt{x} _____

II. Steps

A. Identify the root and the base

B. Breakdown the base to prime and group them into roots OR perfect roots into radical form

C. Combine all the same radicals

D. Multiply the bases and radicals together

III. Model Problems

Ex 1: Simplify $\sqrt{25}$	Ex 2: Simplify $\sqrt{12}$
Ex 3: Simplify $\sqrt{48}$	Your Turn: Simplify $\sqrt{200}$

Ex 4: Simplify $\sqrt{\frac{25}{9}}$	Ex 5: Simplify $\sqrt{25a^2}$
Your Turn: Simplify $\sqrt{\frac{7}{49}}$	

IV. Multiplying Radicals

- A. _____ radicals to proper simplified form
- B. _____ the outside numbers and inside numbers
- C. _____, if needed

II. Steps

- A. _____ radicals to proper simplified form
- B. _____ the denominator to the numerator and denominator of the original fraction
- C. _____ the expression

III. Model Problems

Ex 6: Simplify $\sqrt{36} \cdot \sqrt{25}$	Ex 7: Simplify $\sqrt{36} \cdot \sqrt{5}$
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Ex 8: Simplify $\sqrt{81} \cdot 2\sqrt{7}$	Your Turn: Simplify $-\sqrt{11} \cdot \sqrt{121}$
Ex 9: Simplify $2\sqrt{3} \cdot 4\sqrt{5}$	Your Turn: Simplify, $\sqrt{5} \cdot 4\sqrt{20}$

IV. Steps

- A. Rule is _____
- B. _____ the denominator to the numerator and denominator of the original fraction
- C. _____ the expression

Ex 10: Rationalize $\sqrt{\frac{81}{10}}$	Ex 11: Rationalize $\sqrt{\frac{12}{5}}$
Your Turn: Rationalize $\sqrt{\frac{5}{24}}$	