

Name _____

Period: _____

Date: _____

Simplifying Radicals

PERFECT SQUARES

1 x 1
2 x 2
3 x 3
4 x 4
5 x 5
6 x 6
7 x 7
8 x 8
9 x 9
10 x 10
11 x 11
12 x 12
13 x 13
14 x 14
15 x 15

For a number to be in **SIMPLEST RADICAL FORM**, two requirements must be met:

1. The radicand must have no perfect square factors, cubed factors, 4th roots, etc. (except the factor 1).
2. There must be no radicals in the denominator.

Let's write $\sqrt{48}$ in simplest radical form.

What is the largest perfect square factor of 48?

$$2 \times 24$$

$$3 \times \textcircled{16} \leftarrow \text{largest perfect square}$$

perfect square, but not largest $\rightarrow 4 \times 12$

$$6 \times 8$$

$$\text{Rewrite: } \sqrt{48} = \sqrt{16 \times 3} = \sqrt{16} \times \sqrt{3} = 4\sqrt{3}$$

$\sqrt{48}$ in simplest radical form is $4\sqrt{3}$.

Let's try: Write the following numbers in simplest radical form.

1. $\sqrt{75}$

2. $\sqrt{27}$

3. $\sqrt{18}$

4. $\sqrt{24}$

5. $\sqrt{300}$

6. $\sqrt{40}$

7. $\sqrt{54}$

8. $\sqrt{180}$

9. $\sqrt{242}$

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Practice - Simplifying Radicals

Write the following numbers in simplest radical form.

1. $\sqrt{32}$

2. $\sqrt{20}$

3. $\sqrt{12}$

4. $\sqrt{45}$

5. $-\sqrt{8}$

6. $\sqrt{500}$

7. $-\sqrt{28}$

8. $\sqrt{50}$

9. $\sqrt{98}$

10. $\sqrt{80}$

11. $\sqrt{162}$

12. $-\sqrt{150}$