

Warm up

Do on BACK side of Solving Equations wkst from yesterday

1. Simplify $-\sqrt{169}$

$$\textcircled{-13}$$

2. Solve $\sqrt{64}$

$$\pm 8$$

3. $7x^2 + 30 = 9$

No Solution

4. $7x^2 - 63 = 0$

$$\begin{aligned} &+63 \quad +63 \\ 7x^2 &= 63 \\ \frac{7x^2}{7} &= \frac{63}{7} \\ \sqrt{x^2} &= \sqrt{9} \end{aligned}$$

$$x = \pm 3$$

Homework Questions?

Self Scoring Scale

4- I can *summarize* the concepts and explain it to others.

3- I can *apply* the concepts to answer questions correctly.

2- I can *apply* the concepts but with some *mistakes*.

1- I *need help* to know how to apply the concepts.

0- I *can't* apply the concepts even with help.

9.2 Simplifying Radicals

Goals:

- Use properties of radicals to simplify radicals.
- Use quadratic equations to model real-life problems.

EQ:

What does a simplified expression mean?

4 BIGGER PICTURE Algebra 1.5 DATE _____ Mo/Date/Year		
2 LAST UNIT/Experience Exponents	1 CURRENT UNIT Quadratic Equations	3 NEXT UNIT/Experience Factoring
8 Student Activities or Assignments 1. Solving Quadratic Worksheet	5 UNIT MAP 	
7 UNIT SELF-TEST QUESTIONS 1. How can you solve a quadratic equation by using square roots? 2. How do you simplify radical expressions? 3. What steps are necessary to graph a quadratic equation? 4. How is the quadratic formula used to solve a quadratic equation? 5. How is the discriminant found and what information does it tell you?	6 UNIT RELATIONSHIPS Solve Simplify Graph Compare.	

Vocabulary

Simplest form:

- 1) $\sqrt{\text{No Perfect Squares}}$ ex: No $\sqrt{36}$
- 2) $\sqrt{\text{No Fractions}}$ No $\sqrt{\frac{3}{16}}$
- 3) $\sqrt{\text{Denominator}}$ No $\frac{2}{\sqrt{10}}$

PROPERTIES OF RADICALS

Product Property The square root of a product equals the product of the square roots of the factors.

$$\sqrt{ab} = \sqrt{a} \cdot \sqrt{b} \quad \text{where } a \geq 0 \text{ and } b \geq 0$$

Quotient Property The square root of a quotient equals the quotient of the square roots of the numerator and denominator

$$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}} \quad \text{when } a \geq 0 \text{ and } b \geq 0$$

Example 1: Simplifying with the Product Property

Simplify the expression $\sqrt{27}$.

* Look for perfect squares

$$\begin{aligned}\sqrt{27} &= \sqrt{9 \cdot 3} \\ &= \sqrt{9} \sqrt{3} \\ &= \textcircled{3\sqrt{3}}\end{aligned}$$

Perfect Squares

4	81
9	100
16	121
25	144
36	169
49	196
64	225

Example 2: Simplifying with the Quotient Property

Simplify the expression.

$$\text{a) } \sqrt{\frac{5}{16}} = \frac{\sqrt{5}}{\sqrt{16}}$$

$$= \frac{\sqrt{5}}{4}$$

$$\frac{\sqrt{16} \sqrt{5}}{\sqrt{25} \sqrt{5}} = \frac{4}{5}$$

$$\text{b) } \sqrt{\frac{48}{75}} = \frac{\sqrt{48}}{\sqrt{75}}$$

$$= \frac{\sqrt{4} \sqrt{12}}{\sqrt{25} \sqrt{3}}$$

$$= \frac{2 \sqrt{4} \sqrt{3}}{5 \sqrt{3}} = \frac{4 \sqrt{3}}{5 \sqrt{3}}$$

$$= \frac{4}{5}$$

Try It Simplify the expression.

$$1) \sqrt{12} = \sqrt{4}\sqrt{3} \\ = \underline{2\sqrt{3}}$$

$$2) \sqrt{63} = \sqrt{9}\sqrt{7} \\ = \underline{3\sqrt{7}}$$

$$3) \sqrt{\frac{13}{36}} = \frac{\sqrt{13}}{\sqrt{36}} = \frac{\sqrt{13}}{6}$$

$$4) \sqrt{\frac{48}{81}} = \frac{\sqrt{48}}{\sqrt{81}} = \frac{\sqrt{16}\sqrt{3}}{9} \\ = \frac{2\sqrt{4}\sqrt{3}}{9} \\ = \underline{\frac{4\sqrt{3}}{9}}$$

$$5) \frac{\sqrt{54}}{3} = \frac{\sqrt{9}\sqrt{6}}{3} \\ = \frac{3\sqrt{6}}{3} \\ = \underline{\sqrt{6}}$$

$$6) \sqrt{\frac{90}{160}} = \frac{\sqrt{90}}{\sqrt{160}} = \frac{\sqrt{9}\sqrt{10}}{\sqrt{16}\sqrt{10}} \\ = \frac{3\sqrt{10}}{4\sqrt{10}} = \underline{\frac{3}{4}}$$

9.2 Homework

9.2 Notes wkst #1-13

& wkst #1-18