

9.1 Simplifying Radical Expressions Product DAY ONE with work

Algebra Section 9.1

DAY 1: Simplifying Radical Expressions

index $\sqrt{\text{radicand}}$

- ☼ An expression that contains a square root is a **radical expression**.
- ☼ The expression under the radical sign is called the **radicand**.
- ☼ A radical is in **simplest form** when the radicand has no **perfect square factors other than 1**.
1 4 9 16 25 ...

Product Property of Square Roots

For any two numbers **a** and **b**, where $a \geq 0$ and $b \geq 0$, the square root of the product **ab** is equal to the **product of each square root**.

$$\sqrt{ab} = \sqrt{a} \cdot \sqrt{b}$$

Apr 1-8:55 AM

Examples:

$$\begin{aligned} \sqrt{12} &= \sqrt{4 \cdot 3} = \sqrt{2^2} \cdot \sqrt{3} = 2\sqrt{3} \\ \sqrt{90} &= \sqrt{9 \cdot 10} = \sqrt{3^2} \cdot \sqrt{10} = 3\sqrt{10} \end{aligned}$$

Another way to think about it

Think about the numbers that are perfect squares:

1 4 9 16 25 36 49 64 81 100 121

Can you divide a perfect square out of the radicand?

144

Yes

Apr 18-11:09 AM

9.1 Simplifying Radical Expressions Product DAY ONE with work

Examples & Practice:

Simplify each.

$$\sqrt{40} = \sqrt{4 \cdot 10} = 2\sqrt{10}$$

$$\sqrt{72} = \sqrt{9 \cdot 8} = 3\sqrt{8} = 3\sqrt{4 \cdot 2} = 6\sqrt{2}$$

$$\sqrt{2} \cdot \sqrt{24} = \sqrt{2 \cdot 4 \cdot 6} = 2\sqrt{2 \cdot 6} = 2\sqrt{12}$$

$$\sqrt{45a^4b^5c^6} = \sqrt{9 \cdot 5 \cdot a^4 \cdot b^4 \cdot c^6}$$

$$= 3a^2b^2c^3\sqrt{5b}$$

Apr 1-9:11 AM

$$\sqrt{50p^3} = \sqrt{5 \cdot 2 \cdot p^2 \cdot p} = 5p\sqrt{2p}$$

$$\sqrt{27xy^3} = \sqrt{3 \cdot 3 \cdot 3 \cdot x \cdot y^2 \cdot y} = 3y\sqrt{3xy}$$

$$\sqrt{108x^3y^4z^6} = \sqrt{6 \cdot 6 \cdot 3 \cdot x^2 \cdot x \cdot y^2 \cdot y^2 \cdot z^4 \cdot z^2}$$

$$= 6xy^2z^3\sqrt{3x}$$

Apr 1-9:17 AM

Day One Assignment

9.1 Day One WS

Study Guide & Intervention Simplifying Radical Expressions

1 - 22 FRONT ONLY

(front today & back tomorrow)