



9-3 Reteach to Build Understanding

Rewriting Radical Expressions

1. Use the Product Property of Square Roots to simplify each expression. Then match each expression in the left column with an equivalent expression in the right column.

The **Product Property of Square Roots** states that $\sqrt{ab} = \sqrt{a} \cdot \sqrt{b}$ when both a and b are greater than or equal to 0.

$\sqrt{28}$

$90\sqrt{5}$

$19\sqrt{24x^3}$

$2\sqrt{7}$

$7\sqrt{5x} \cdot 3\sqrt{15x^2}$

$105x\sqrt{3x}$

$9\sqrt{2} \cdot 5\sqrt{10}$

$38x\sqrt{6x}$

2. Complete the steps for multiplying the expression $5\sqrt{8x^3} \cdot 9\sqrt{20x}$.

$$\begin{aligned}
 5\sqrt{8x^3} \cdot 9\sqrt{20x} &= 5 \cdot 9\sqrt{\quad} && \longleftarrow \text{Multiply the constants and} \\
 &= 45\sqrt{\quad} \quad x \cdot x \cdot x \cdot x && \text{use the Product Property} \\
 &= 45\sqrt{\quad} \quad \sqrt{\quad} \quad \sqrt{\quad} \cdot \sqrt{x^2} \cdot x^2 && \longleftarrow \text{of Square Roots to multiply} \\
 &= 45 \cdot \quad && \text{the radicals.} \\
 &= \quad && \longleftarrow \text{Group numbers and} \\
 & && \text{variables under the radicals} \\
 & && \text{to form perfect squares.}
 \end{aligned}$$

3. Addison completed the steps for multiplying the expression $4\sqrt{3x^2} \cdot 3\sqrt{12x}$. Find and correct his error.

$$\begin{aligned}
 4\sqrt{3x^2} \cdot 3\sqrt{12x} &= 4 \cdot 3\sqrt{3x^2} \cdot 12x \\
 &= 12\sqrt{3 \cdot 3 \cdot 2 \cdot 2 \cdot x \cdot x \cdot x} \\
 &= 12\sqrt{3 \cdot 3 \cdot 2 \cdot 2 \cdot x^3} \\
 &= 12 \cdot 3 \cdot 2 \cdot x \cdot \sqrt{x^2} \\
 &= 72x^2
 \end{aligned}$$