Pre-Algebra Workbook

Radicals

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RADICALS

- 1. Radicals are the opposite of _____.
- 2. $\sqrt[4]{x}$ can also be written as _____.
- 3. Find the value of $\sqrt{36}$.
- 4. $x^{\frac{1}{3}}$ can also be written as _____.
- 5. Find the value of $\sqrt{300}$.
- 6. Find the value of $\sqrt{5{,}000}$.

ADDING AND SUBTRACTING RADICALS

- 1. Find the value of $2\sqrt{3} + 5\sqrt{3}$.

- 2. Find the value of $\sqrt{32} - \sqrt{2}$.

- 3. Find the value of $\sqrt{3} + \sqrt{12}$.

- 4. Find the value of $\sqrt{16} + \sqrt{25}$.

- 5. Find the value of $4\sqrt{3} + 2\sqrt{2} - 2\sqrt{3} - \sqrt{2}$.

- 6. Find the value of $3\sqrt{4} - 2\sqrt{9}$.

MULTIPLYING RADICALS

1. Find the value of $\sqrt{20} \cdot \sqrt{4}$.

2. Find the value of $\sqrt{13} \cdot \sqrt{7}$.

3. Find the value of $8\sqrt{3} \cdot \sqrt{12}$.

4. Find the value of $15\sqrt{2} \cdot \sqrt{16}$.

5. Find the value of $2\sqrt{3} \cdot 5\sqrt{5}$.

6. Find the value of $\sqrt[3]{12} \cdot \sqrt[3]{4}$.

DIVIDING RADICALS

1. Simplify the expression.

$$\sqrt{\frac{36}{6}}$$

2. Simplify the expression.

$$\sqrt{\frac{45}{5}}$$

3. Simplify the expression.

$$\frac{\sqrt{20x^5y^7}}{\sqrt{5x^3y}}$$

4. Simplify the expression.

$$\frac{\sqrt[3]{-32}}{\sqrt[3]{2}}$$

5. Simplify the expression.

$$\frac{\sqrt{5}}{\sqrt{15}}$$

6. Simplify the expression.

$$\frac{\sqrt{8}}{5\sqrt{2}}$$

RADICAL EXPRESSIONS

■ 1. Find the value of $\sqrt{80} - \sqrt{20}$.

■ 2. Find the value of $5\sqrt{24} \cdot \sqrt{15}$.

■ 3. The square root of a number multiplied by the square root of the same number is equal to _____.

■ 4. Find the value of $\sqrt{2} + \sqrt{32} - \sqrt{50}$.

■ 5. To be able to add or subtract radicals, the roots must be _____ when they are simplified.

■ 6. Roberta is trying to simplify the following radical expression,

$$\sqrt{4} + \sqrt{20} - 2\sqrt{5} + \sqrt{25}$$

and her work is shown below.

Step 1: $2 + \sqrt{20} - 2\sqrt{5} + 5$

Step 2: $2+\sqrt{4\cdot 5}-2\sqrt{5}+5$

Step 3: $2+4\sqrt{5}-2\sqrt{5}+5$

Step 4: $7+2\sqrt{5}$

In which step did she make a mistake? What should she have done differently, and what is the correct answer?

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