6-1 Reteach to Build Understanding

Rational Exponents and Properties of Exponents

1. Each of the solutions shown uses a different property of exponents. Draw a line from each property to the solution that uses it.

$$8^{\frac{1}{3}} \times 8^{\frac{1}{3}} = 8^{\frac{1}{3}+\frac{1}{3}} \qquad \frac{27^{\frac{2}{3}}}{27^{\frac{1}{3}}} = 27^{\frac{2}{3}-\frac{1}{3}} \qquad (16 \times 25)^{\frac{1}{2}} = 16^{\frac{1}{2}} \times 25^{\frac{1}{2}} \qquad \left(9^{\frac{1}{3}}\right)^{6} = 9^{\frac{1}{3} \times 6}$$

$$= 8^{\frac{2}{3}} \qquad\qquad\quad = 27^{\frac{1}{3}} \qquad\qquad\qquad\qquad = 4 \times 5 \qquad\qquad\qquad = 9^{2}$$

$$= 4 \qquad\qquad\qquad = 3 \qquad\qquad\qquad\qquad\quad = 20 \qquad\qquad\qquad\quad = 81$$

Power of a Power	Power of a Product	Product of Powers	Quotient of Powers

2. Rob incorrectly simplified the radical expression. Find and correct his error.

$$\sqrt[3]{64^{2}} = 64^{\frac{3}{2}}$$
$$= \left(64^{\frac{1}{2}}\right)^{3}$$
$$= 8^{3}$$
$$= 512$$

3. Complete the steps for solving this equation. Write numbers, variables, or expressions in the blanks.

$$81^{x+6} = 243^{2x+5}$$

$$\left(3^{—}\right)^{x+6} = \left(3^{—}\right)^{2x+5} \qquad\qquad \text{Write both expressions with a base of 3.}$$

$$3^{4(x+6)} = 3^{————} \qquad\qquad\qquad \text{Use the Power of a Power Property.}$$

$$4(x+6) = \underline{\hspace{2cm}} \qquad\qquad\qquad \text{Write an equation for the exponents.}$$

$$4x + \underline{\hspace{1.5cm}} = 10x + \underline{\hspace{1.5cm}} \qquad \text{Use the Distributive Property.}$$

$$\underline{\hspace{2cm}} = 6x$$

$$\underline{\hspace{2cm}} = x$$

The solution is _____.