Chapter 4 Warm-Up

Section 4.1 Warm-Up

1. For each equation, use the same number in each box to make a true statement.

a) $(\square)(\square) = 64$

b) $(\square)(\square) = 100$

c) $(\square)(\square) = 25$

d) $(\square)(\square) = 144$

2. Estimate the value of each square root.

a) $\sqrt{27}$

b) $\sqrt{90}$

c) $\sqrt{78}$

3. For each equation, use the same number in each box to make a true statement.

a) $(\square)(\square)(\square) = 64$

b) $(\square)(\square)(\square) = 8$

c) $(\square)(\square)(\square) = 27$

d) $(\square)(\square)(\square) = 1000$

4. Evaluate.

a) 2^3 **b)** 3^2 **c)** 5^3

5. Rewrite each number as a product of prime numbers.

a) 12 **b)** 90 **c)** 112

Section 4.2 Warm-Up

1. Use the exponent laws to rewrite each expression as a single power.

a) $(x^3)(x^5)$

b) $\dfrac{y^8}{y^2}$

c) $\dfrac{(b^5)(b)}{b^2}$

2. Use the exponent laws to rewrite each expression as a single power.

a) $(x^5)^2$ **b)** $\dfrac{y^7}{(y^2)^3}$ **c)** $(b^2)^3 (b^4)^4$

3. Simplify each expression.

a) $(2x^3)^2$ **b)** $(4y^2)^3$ **c)** $(3x^6y^5)^2$

4. Evaluate.

a) $\dfrac{3}{5} \div \dfrac{2}{3}$

b) $\left(\dfrac{1}{2}\right)^4$

c) $5 \div \dfrac{2}{3}$

5. What is the missing number?

a) $2^{\square} = 32$

b) $\left(\dfrac{1}{2}\right)^{\square} = \dfrac{1}{16}$

c) $3^{\square} = 81$

d) $\left(\dfrac{1}{3}\right)^{\square} = \dfrac{1}{27}$

Section 4.3 Warm-Up

1. Calculate without using a calculator.

a) $\frac{3}{4}+\frac{5}{6}$

b) $\frac{3}{8}-\frac{1}{4}$

c) $\frac{5}{6}-\frac{1}{2}+\frac{3}{4}$

2. Evaluate without using a calculator.

a) 5^0

b) 2^{-3}

c) $\left(\frac{3}{4}\right)^{-2}$

d) $\left(\frac{-5}{3}\right)^{-4}$

3. Use the exponent laws to rewrite each expression as a single power.

a) $(y^8)\,(y^{-2})$

b) $\frac{\left(b^5\right)\left(b^{-1}\right)}{b^{-3}}$

c) $(x^5)^{-2}$

d) $\frac{y^7}{\left(y^{-4}\right)^{-3}}$

4. Convert each fraction to a decimal.

a) $\frac{7}{8}$ **b)** $\frac{4}{5}$ **c)** $\frac{11}{16}$

5. A vehicle decreases in value by 15% each year. If it was worth \$35 000 when it was new, what would be its value after three years? Give the answer to the nearest dollar.

Section 4.4 Warm-Up

1. Write the prime factorization for each number.

a) 54

b) 180

c) 200

2. Evaluate.

a) $\sqrt[3]{125}$

b) $-\sqrt{10\,000}$

c) $\sqrt[3]{-64}$

3. Rewrite each radical as a power.

a) $\sqrt{7}$

b) $\sqrt[3]{-8}$

c) $\sqrt[3]{x^5}$

4. Evaluate each expression. Write each answer as an integer or a fraction.

a) $27^{\frac{2}{3}}$

b) $16^{-\frac{1}{2}}$

c) $(-8)^{-\frac{4}{3}}$

5. Which of the following sequences of keystrokes will correctly evaluate $\frac{3+9}{3}$?

Hint: There may be more than one correct sequence.

a) 3 + 9 ÷ 3

b) (3 + 9) ÷ 3

c) 3 ÷ 3 + 9 ÷ 3

d) 3 ÷ 3 + 9