

Chapter 5 Warm-Up

Section 5.1 Warm-Up

- Fill in the blanks using numerical values.
 - $(6)(6)$ is equal to ____, so 6 is a square root of ____.
 - The square of 9 is equal to ____, so 9 is a square root of ____.
 - 8^2 is equal to ____, so ____ is the square of ____ and ____ is a square root of ____.
 - $(5)(5)(5)$ is equal to ____, so 5 is a cube root of ____.
 - 2^3 is equal to ____, so ____ is the cube of ____ and ____ is a cube root of ____.
- Without using a calculator, determine the value of each expression.
 - square of 11
 - 4^2
 - square roots of 169
 - $\sqrt{121}$
 - 5^3
 - 6.5^3
 - $\sqrt[3]{64}$
 - $\sqrt[3]{0.008}$
- Using a calculator, determine the value of each expression. Express each answer to two decimal places.
 - $(27.3)^2$
 - $\sqrt{11.9}$
 - $(4.1)^3$
 - $\sqrt[3]{11.9}$
 - $\sqrt{0.05}$
 - $\sqrt[3]{0.8}$
- Between which two consecutive integers is each square root?
 - $\sqrt{17}$
 - $\sqrt{125}$
 - $-\sqrt{5}$
 - $-\sqrt{70}$
- Express each entire radical as an equivalent mixed radical in simplest form.
 - $\sqrt{12}$
 - $\sqrt{32}$
 - $\sqrt{75}$
 - $\sqrt{90}$
 - $\sqrt[3]{16}$
 - $\sqrt[3]{250}$
- Convert each mixed radical to an equivalent entire radical.
 - $2\sqrt{5}$
 - $13\sqrt{2}$
 - $5\sqrt{2}$
 - $4\sqrt[3]{2}$
 - $2\sqrt[3]{4}$
- Simplify by combining like terms.
 - $3x - 7y^2 - 4x + 9y$
 - $3am - 2pm + am - 4pm$
 - $3x^2 - 4x^2 + 5x^2y$
 - $p^3 + q^2y - p^3 + qy^2 + 5q^2y$

Section 5.2 Warm-Up

- Multiply.
 - $(2s^2t)(3s^2t)$
 - $(-3x)(2xp)$
 - $2b(3b - 1)$
 - $-(4x^2 - 3y^2)$
 - $(2n - 3)(n + 1)$
 - $(3x - 4y)(x - 2y)$
- Divide.
 - $\frac{-6x^2y}{3x}$
 - $\frac{(11a^3 - 22a^2 - 44a^2b)}{(11a^2)}$
 - $\frac{4t^2 - 12t}{-2t}$
 - $\frac{(3x - 5)(3x + 5)}{3x + 5}$
- Express each entire radical as an equivalent mixed radical in simplest form.
 - $\sqrt{20x^4y^8}$
 - $\sqrt{9xy^4}$
 - $\sqrt{6m^5n}$
 - $\sqrt[3]{16t^4}$
- Express each mixed radical as an equivalent entire radical.
 - $3p\sqrt{2p}$
 - $4x^2\sqrt{3x}$
 - $x\sqrt[3]{x}$
 - $-2y\sqrt[3]{5}$
- Simplify. Assume that all variables represent positive values.
 - $4\sqrt{p} - 3\sqrt{p} + \sqrt{p}$
 - $x\sqrt{4} - x\sqrt{3} + x$
 - $9\sqrt{ab} + 3\sqrt{ab} - \sqrt{49ab}$
 - $\sqrt{11y} - \sqrt{44y}$
 - $(30x + \sqrt{80}) - (20x - \sqrt{20})$
 - $(8 + \sqrt{18x^2}) + (2 - \sqrt{8x^2}) - (5 - \sqrt{50x^2})$



Section 5.3 Warm-Up

1. Solve for x .

a) $6x - 4 = 2(x - 3)$

b) $x^2 - 5x + 6 = 0$

c) $2x^2 - 5x - 4 = 0$

2. Multiply and simplify. Assume that all variables represent positive values.

a) $(5\sqrt{x})^2$

b) $(\sqrt{y^9})(\sqrt{y})$

c) $(\sqrt{2t})(3\sqrt{12t})$

d) $\sqrt{m}(\sqrt{m} - 2)$

e) $(6 + \sqrt{5n})(2 - \sqrt{5n})$

f) $(\sqrt{x} - \sqrt{y})(\sqrt{x} + \sqrt{y})$

g) $(3 - \sqrt{x})^2$

h) $(2\sqrt{x} + 3\sqrt{y})^2$

3. Divide and simplify. Identify the values of the variables that make the expression a real number.

a) $\frac{\sqrt{16p}}{\sqrt{p}}$

b) $\frac{\sqrt{20x^7}}{\sqrt{5x}}$

c) $\frac{\sqrt{y^{10}}}{\sqrt{4y^5}}$

d) $\frac{\sqrt{(x-1)^3}}{\sqrt{(x-1)^5}}$

4. Determine a conjugate for each expression.

a) $3 - \sqrt{7}$

b) $\sqrt{x} - 2\sqrt{3}$

c) $\sqrt{x} + \sqrt{y}$

5. Rationalize each denominator. Simplify.

a) $\frac{2}{6\sqrt{5}}$

b) $\frac{\sqrt{15}}{\sqrt{2}}$

c) $\frac{5\sqrt{6}}{6\sqrt{5}}$

d) $\frac{2}{\sqrt{3} - 2}$

e) $\frac{2\sqrt{3} - 3\sqrt{2}}{3\sqrt{2} + 2\sqrt{3}}$

f) $\frac{x^2 - y^2}{\sqrt{x} + \sqrt{y}}$

