

**Beginning Algebra**  
**Ch. 8 Practice**

Name \_\_\_\_\_  
Section \_\_\_\_\_

In problems 1-6, simplify each expression. Assume  $x > 0$ ,  $y > 0$ .

**1.**  $\sqrt{121}$

**2.**  $\sqrt[3]{-343}$

**3.**  $\sqrt{\frac{52}{36}}$

**4.**  $-\sqrt{28x^{17}}$

**5.**  $\sqrt[3]{64x^7y^{12}}$

**6.**  $\sqrt{\frac{486x^{12}y^{21}}{6x^2y}}$

**7.** A 35-foot ladder reaches a point on a wall 21 feet above the ground. How far from the wall is the ladder's base? [Hint  $a^2 + b^2 = c^2$ ]

**8.** Simplify:  $\sqrt{50}$

**9.** Simplify:  $\sqrt{\frac{5}{6}}$

**10.** Combine:  $\sqrt{18} - \sqrt{50} + \sqrt{8}$

**11.** Multiply:  $\sqrt{2}(\sqrt{3} - 1)$

In problems 12 – 20, do each operation and simplify. All variables represent positive numbers.

**12.**  $3x\sqrt{28} + 5\sqrt{63x^2}$

**13.**  $(-5\sqrt{24y})(2\sqrt{24y})$

**14.**  $(\sqrt{5} - 2)^2$

**15.**  $(5\sqrt{x} - 7)^2$

**16.**  $(\sqrt{x} + 4)(\sqrt{x} - 4)$

**17.**  $(\sqrt{6} - 2\sqrt{5})(2\sqrt{6} - \sqrt{5})$

**18.** Simplify:  $\frac{10}{\sqrt{5}}$

**19.** Simplify:  $\frac{z}{\sqrt{5} + 2}$

**20.** Rationalize the denominator:  $\frac{\sqrt{x} + \sqrt{3}}{\sqrt{x} - \sqrt{3}}$

**Answers**

**1.** 11

**2.** -7

**3.**  $\frac{\sqrt{13}}{3}$

**4.**  $-2x^8\sqrt{7x}$

**5.**  $4x^2y^4\sqrt[3]{x}$

**6.**  $9x^5y^{10}$

**7.** 28 feet

**8.**  $5\sqrt{2}$

**9.**  $\frac{\sqrt{30}}{6}$

**10.** 0

**11.**  $\sqrt{6} - \sqrt{2}$

**12.**  $21x\sqrt{7}$

**13.**  $-240y$

**14.**  $9 - 4\sqrt{5}$

**15.**  $25x - 70\sqrt{x} + 49$

**16.**  $x - 16$

**17.**  $22 - 5\sqrt{30}$

**18.**  $2\sqrt{5}$

**19.**  $z\sqrt{5} - 2z$

**20.**  $\frac{x + 2\sqrt{3x} + 3}{x - 3}$