

Name Answer Key Date \_\_\_\_\_

## Homework: Rationalize the Denominator (Lesson 4)

Rationalize the denominator of each expression. Assume that all variables are positive.

$$1. \frac{\sqrt{3x}}{\sqrt{6}} \quad \frac{\sqrt{2x}}{2}$$

$$2. \frac{\sqrt{2x^3y}}{\sqrt{5x}} \times \frac{\sqrt{10y}}{5}$$

$$3. \frac{4}{\sqrt[3]{3}} \quad \frac{4\sqrt[3]{9}}{3}$$

$$4. \sqrt{\frac{9x}{2}} \quad \frac{3\sqrt{2x}}{2}$$

$$5. \frac{\sqrt{xy}}{\sqrt{3x}} \quad \frac{\sqrt{3y}}{3}$$

$$6. \sqrt[3]{\frac{x^2}{3y}} \quad \frac{\sqrt[3]{9x^2y^2}}{3y}$$

Divide, if possible, and simplify – then rationalize if needed

$$7. \frac{\sqrt{6x}}{\sqrt{5}} \quad \frac{\sqrt{30x}}{5}$$

$$8. \sqrt[3]{\frac{243k^7}{5k^3}} \quad \frac{3k\sqrt[3]{225k}}{5}$$

$$9. \frac{\sqrt[3]{7x^5y^{14}}}{\sqrt[3]{3x^3y^2}} \quad \frac{\sqrt[4]{63x^2}}{3}$$

Rationalize each denominator. Simplify the answer.

$$10. \frac{3 - \sqrt{10}}{5 - \sqrt{2}} \quad \frac{15 + 3\sqrt{2} - 5\sqrt{10} - 2\sqrt{5}}{23}$$

$$11. \frac{5}{2 + \sqrt{3}}$$

$$10 - 5\sqrt{3}$$

$$12. \frac{2}{2\sqrt{3} - 4} \quad -\sqrt{3} - 2$$

$$13. \frac{2 + \sqrt{7}}{\sqrt{3} - \sqrt{2}} \quad 2\sqrt{3} + 2\sqrt{2} + \sqrt{21} + \sqrt{14}$$

$$15. \frac{2 + \sqrt[3]{x}}{\sqrt[3]{x}} \quad \frac{2\sqrt[3]{x^2} + x}{x}$$