EXTRA PRACTICE 41
Rationalizing Denominators
Use after Section 10.5 **Name**________________________________

Examples: Assume that all expressions represent nonnegative numbers.

a) Rationalize the denominator.

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

$$= \frac{\sqrt[3]{4x^2}}{\sqrt[3]{3y^5}} \cdot \frac{\sqrt[3]{9y}}{\sqrt[3]{9y}}$$

$$= \frac{\sqrt[3]{36x^2y}}{\sqrt[3]{27y^6}}$$

$$= \frac{\sqrt[3]{36x^2y}}{3y^2}$$

b) Rationalize the denominator.

$$\frac{5}{\sqrt{7}+\sqrt{5}}$$

$$= \frac{5}{\sqrt{7}+\sqrt{5}} \cdot \frac{\sqrt{7}-\sqrt{5}}{\sqrt{7}-\sqrt{5}}$$

$$= \frac{5\sqrt{7}-5\sqrt{5}}{\left(\sqrt{7}\right)^2-\left(\sqrt{5}\right)^2}$$

$$= \frac{5\sqrt{7}-5\sqrt{5}}{7-5}$$

$$= \frac{5\sqrt{7}-5\sqrt{5}}{2}$$

Rationalize the denominator. Assume that all expressions represent nonnegative numbers.

1. $\sqrt{\frac{6}{7}} =$ ____________________ _ 2. $\frac{\sqrt{2}}{\sqrt{5}} =$ ____________________

3. $\sqrt{\frac{8x}{3y}} =$ ____________________ _ 4. $\sqrt{\frac{2x}{3y}} =$ ____________________

5. $\frac{\sqrt[3]{3x^2}}{\sqrt[3]{5y^4}} =$ ____________________ _ 6. $\frac{\sqrt[4]{7y^3}}{\sqrt[4]{8x^5}} =$ ____________________

7. $\frac{\sqrt[3]{4x^2}}{\sqrt[3]{5y}} =$ ____________________ _ 8. $\frac{\sqrt[5]{2x^3}}{\sqrt[5]{3y}} =$ ____________________

EXTRA PRACTICE 41 (continued)
Rationalizing Denominators
Use after Section 10.5

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9. $\dfrac{\sqrt[3]{3x}}{\sqrt[3]{y}} =$ ______________________

_ 10. $\sqrt{\dfrac{5y}{3x}} =$ ______________________

11. $\dfrac{2x}{\sqrt{5y}} =$ ______________________

_ 12. $\dfrac{3x^2}{\sqrt[3]{2y}} =$ ______________________

13. $\dfrac{4}{8-\sqrt{5}} =$ ______________________

_ 14. $\dfrac{-3\sqrt{5}}{\sqrt{6}-\sqrt{3}} =$ ______________________

15. $\dfrac{18\sqrt{3}}{\sqrt{3}-\sqrt{7}} =$ ______________________

_ 16. $\dfrac{2\sqrt{3}}{\sqrt{3x}-\sqrt{2x}} =$ ______________________

17. $\dfrac{\sqrt{7}-2\sqrt{3}}{\sqrt{7}-\sqrt{3}} =$ ______________________

_ 18. $\dfrac{2\sqrt{x}-\sqrt{y}}{\sqrt{x}+\sqrt{y}} =$ ______________________

19. $\dfrac{\sqrt{7}-2\sqrt{x}}{\sqrt{7}+\sqrt{x}} =$ ______________________

_ 20. $\dfrac{2\sqrt{x}-\sqrt{y}}{\sqrt{x}-3\sqrt{y}} =$ ______________________