Name _____ Class _____ Date _____

Practice
11-2
Multiplying and Dividing Radical Expressions

Simplify. Assume that all variables are positive.

1. $\sqrt{36x^3}$

2. $\sqrt[3]{125y^2z^4}$

3. $\sqrt{18k^6}$

4. $\sqrt[3]{-16a^{12}}$

5. $\sqrt{x^2y^{10}z}$

6. $\sqrt[4]{256s^7t^{12}}$

7. $\sqrt[3]{216x^4y^3}$

8. $\sqrt{75r^3}$

9. $\sqrt[4]{625u^5v^8}$

Multiply and simplify. Assume that all variables are positive.

10. $\sqrt{4}\cdot\sqrt{6}$

11. $\sqrt{9x^2}\cdot\sqrt{9y^5}$

12. $\sqrt[3]{50x^2z^5}\cdot\sqrt[3]{15y^3z}$

13. $4\sqrt{2x}\cdot3\sqrt{8x}$

14. $\sqrt{xy}\cdot\sqrt{4xy}$

15. $9\sqrt{2}\cdot3\sqrt{y}$

16. $\sqrt{12x^2y}\cdot\sqrt{3xy^4}$

17. $\sqrt[3]{-9x^2y^4}\cdot\sqrt[3]{12xy}$

18. $7\sqrt{3y^2}\cdot2\sqrt{6x^3y}$

Divide and simplify. Assume that all variables are positive.

19. $\dfrac{\sqrt{75}}{\sqrt{3}}$

20. $\dfrac{\sqrt{63xy^3}}{\sqrt{7y}}$

21. $\dfrac{\sqrt{54x^5y^3}}{\sqrt{2x^2y}}$

22. $\dfrac{\sqrt{6x}}{\sqrt{3x}}$

23. $\dfrac{\sqrt[3]{4x^2}}{\sqrt[3]{x}}$

24. $\sqrt[4]{\dfrac{243k^3}{3k^7}}$

25. $\dfrac{\sqrt{(2x)^2}}{\sqrt{(5y)^4}}$

26. $\dfrac{\sqrt[3]{18y^2}}{\sqrt[3]{12y}}$

27. $\sqrt{\dfrac{162a}{6a^3}}$

Practice (continued)

11-2

Multiplying and Dividing Radical Expressions

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

28. $\dfrac{\sqrt{y}}{\sqrt{5}}$

29. $\dfrac{\sqrt{18x^2 y}}{\sqrt{2y^3}}$

30. $\dfrac{\sqrt[3]{7xy^2}}{\sqrt[3]{4x^2}}$

31. $\sqrt{\dfrac{9x}{2}}$

32. $\dfrac{\sqrt{xy}}{\sqrt{3x}}$

33. $\sqrt[3]{\dfrac{x^2}{3y}}$

34. $\dfrac{\sqrt[4]{2x}}{\sqrt[4]{3x^2}}$

35. $\sqrt{\dfrac{x}{8y}}$

36. $\sqrt[3]{\dfrac{3a}{4b^2 c}}$

37. What is the area of a rectangle with length $\sqrt{175}$ in. and width $\sqrt{63}$ in.?

38. The area of a rectangle is 30 m². If the length is $\sqrt{75}$ m, what is the width?

39. The volume of a right circular cone is $V = \frac{1}{3}\pi r^2 h$, where r is the radius of the base and h is the height of the cone. Solve the formula for r. Rationalize the denominator.

40. The volume of a sphere of radius r is $V = \dfrac{4}{3}\pi r^3$

   a. Use the formula to find r in terms of V. Rationalize the denominator.
   b. Use your answer to part (a) to find the radius of a sphere with volume 100 cubic inches. Round to the nearest hundredth.