6-2

Practice

Form G

Multiplying and Dividing Radical Expressions

Multiply, if possible. Then simplify.

1. $\sqrt{4} \cdot \sqrt{25}$

3. $\sqrt{3} \cdot \sqrt[3]{27}$

5. $\sqrt{18} \cdot \sqrt{50}$

Simplify. Assume that all variables are positive.

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

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

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

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

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

Multiply and simplify. Assume that all variables are positive.

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

19. $4\sqrt{2x} \cdot 3\sqrt{8x}$

21. $9\sqrt{2} \cdot 3\sqrt{y}$

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

Divide and simplify. Assume that all variables are positive.

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

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

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

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

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

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

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

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

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

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

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

45. 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.

Simplify each expression. Rationalize all denominators. Assume that all variables are positive.

47. $\sqrt{14} \cdot \sqrt{21}$

49. $\sqrt{3}(\sqrt{12} - \sqrt{6})$

51. $\dfrac{8}{\sqrt[3]{2x^2}}$