11.2 EXERCISES

SKILL PRACTICE

1. **VOCABULARY** Copy and complete: The process of eliminating a radical from the denominator of a radical expression is called __?__.

2. **WRITING** Is the expression $\sqrt{\frac{2x}{9}}$ written in simplest form? *Explain* why or why not.

EXAMPLES 1, 2, and 3
on pp. 719–720
for Exs. 3–25

USING PRODUCT AND QUOTIENT PROPERTIES Simplify the expression.

3. $\sqrt{20}$ 4. $\sqrt{48}$ 5. $\sqrt{96}$ 6. $\sqrt{72}$

7. $\sqrt{125b}$ 8. $\sqrt{4x^2}$ 9. $\sqrt{81m^3}$ 10. $\sqrt{32m^5}$

11. $\sqrt{5} \cdot \sqrt{30}$ 12. $\sqrt{50} \cdot \sqrt{18}$ 13. $\sqrt{14x} \cdot \sqrt{2x}$ 14. $\sqrt{3b^3} \cdot \sqrt{18b}$

15. $2\sqrt{a^4b^5}$ 16. $\sqrt{64s^4t^3}$ 17. $\sqrt{m^2n} \cdot \sqrt{n}$ 18. $\sqrt{75xy} \cdot \sqrt{2x^3}$

19. $\sqrt{\frac{4}{49}}$ 20. $\sqrt{\frac{7}{81}}$ 21. $\sqrt{\frac{a^3}{121}}$ 22. $\sqrt{\frac{100}{4x^2}}$

23. 🔻 **TAKS REASONING** Which expression is equivalent to $\sqrt{\frac{9x}{16}}$?

(A) $\frac{\sqrt{3x}}{4}$ (B) $\frac{3\sqrt{x}}{4}$ (C) $\frac{3\sqrt{x}}{16}$ (D) $\frac{3x}{4}$

24. **ERROR ANALYSIS** *Describe* and correct the error in simplifying the expression $\sqrt{72}$.

$$\sqrt{72} = \sqrt{4} \cdot \sqrt{18}$$
$$= 2\sqrt{18}$$ ✗

25. **WRITING** *Describe* two different sequences of steps you could take to simplify the expression $\sqrt{45} \cdot \sqrt{5}$.

EXAMPLE 4
on p. 721
for Exs. 26–33

RATIONALIZING THE DENOMINATOR Simplify the expression.

26. $\frac{2}{\sqrt{2}}$ 27. $\frac{4}{\sqrt{3}}$ 28. $\sqrt{\frac{5}{48}}$ 29. $\sqrt{\frac{4}{52}}$

30. $\frac{3}{\sqrt{a}}$ 31. $\frac{1}{\sqrt{2x}}$ 32. $\sqrt{\frac{2x^2}{5}}$ 33. $\sqrt{\frac{8}{3n^3}}$

EXAMPLES 5 and 6
on pp. 721–722
for Exs. 34–45

PERFORMING OPERATIONS ON RADICALS Simplify the expression.

34. $2\sqrt{2} + 6\sqrt{2}$ 35. $\sqrt{5} - 6\sqrt{5}$ 36. $2\sqrt{6} - 5\sqrt{54}$

37. $9\sqrt{32} + \sqrt{2}$ 38. $\sqrt{12} + 6\sqrt{3} + 2\sqrt{6}$ 39. $3\sqrt{7} - 5\sqrt{14} + 2\sqrt{28}$

40. $\sqrt{5}(5 - \sqrt{5})$ 41. $\sqrt{6}(7\sqrt{3} + 6)$ 42. $\sqrt{3}(6\sqrt{2} - 4\sqrt{3})$

43. $(4 - \sqrt{2})(5 + \sqrt{2})$ 44. $(2\sqrt{5} + 7)^2$ 45. $(\sqrt{7} + \sqrt{3})(6 + \sqrt{8})$