6.6 EXERCISES

HOMEWORK KEY

= **WORKED-OUT SOLUTIONS** on p. WS1 for Exs. 5, 13, and 59

= **TAKS PRACTICE AND REASONING** Exs. 12, 22, 43, 44, 59, 60, 63, and 64

SKILL PRACTICE

1. **VOCABULARY** Copy and complete: When you solve an equation algebraically, an apparent solution that must be rejected because it does not satisfy the original equation is called a(n) ? solution.

2. **WRITING** A student was asked to solve $\sqrt{3x - 1} - \sqrt{9x - 5} = 0$. His first step was to square each side. While trying to isolate x, he gave up in frustration. What could the student have done to avoid this situation?

EXAMPLE 1 on p. 452 for Exs. 3–21

EQUATIONS WITH SQUARE ROOTS **Solve the equation. Check your solution.**

3. $\sqrt{5x + 1} = 6$

4. $\sqrt{3x + 10} = 8$

5. $\sqrt{9x} + 11 = 14$

6. $\sqrt{2x} - \frac{2}{3} = 0$

7. $-2\sqrt{24x} + 13 = -11$

8. $8\sqrt{10x} - 7 = 9$

9. $\sqrt{x - 25} + 3 = 5$

10. $-4\sqrt{x} - 6 = -20$

11. $\sqrt{-2x + 3} - 2 = 10$

12. **TAKS REASONING** What is the solution of $\sqrt{8x + 3} = 3$?

Ⓐ $-\frac{3}{4}$ Ⓑ 0 Ⓒ $\frac{3}{4}$ Ⓓ $\frac{9}{8}$

EQUATIONS WITH CUBE ROOTS **Solve the equation. Check your solution.**

13. $\sqrt[3]{x} - 10 = -3$

14. $\sqrt[3]{x - 16} = 2$

15. $\sqrt[3]{12x} - 13 = -7$

16. $3\sqrt[3]{16x} - 7 = 17$

17. $-5\sqrt[3]{8x} + 12 = -8$

18. $\sqrt[3]{4x + 5} = \frac{1}{2}$

19. $\sqrt[3]{x - 3} + 2 = 4$

20. $\sqrt[3]{4x + 2} - 6 = -10$

21. $-4\sqrt[3]{x + 10} + 3 = 15$

22. **OPEN-ENDED MATH** Write a radical equation of the form $\sqrt[3]{ax + b} = c$ that has -3 as a solution. *Explain* the method you used to find your equation.

EXAMPLES 3 and 4 on pp. 453–454 for Exs. 23–33

EQUATIONS WITH RATIONAL EXPONENTS **Solve the equation. Check your solution.**

23. $2x^{2/3} = 32$

24. $\frac{1}{2}x^{5/2} = 16$

25. $9x^{2/5} = 36$

26. $(8x)^{4/3} + 44 = 300$

27. $\frac{1}{7}(x + 9)^{3/2} = 49$

28. $(x - 5)^{5/3} - 73 = 170$

29. $\left(\frac{1}{3}x - 11\right)^{1/2} = 5$

30. $(5x - 19)^{5/6} = 32$

31. $(3x + 43)^{2/3} + 22 = 38$

ERROR ANALYSIS ***Describe*** **and correct the error in solving the equation.**

32.
$$\sqrt[3]{x} + 2 = 4$$
$$(\sqrt[3]{x} + 2)^3 = 4^3$$
$$x + 8 = 64$$
$$x = 56$$

33.
$$(x + 7)^{1/2} = 5$$
$$[(x + 7)^{1/2}]^2 = 5$$
$$x + 7 = 5$$
$$x = -2$$