

4.4 Practice B

In Exercises 1–6, solve the equation. Check your solution.

1. $\sqrt[3]{x-14} = -2$
2. $-5\sqrt{16x} + 17 = -8$
3. $\frac{1}{4}\sqrt[3]{2x} + 8 = 6$
4. $\sqrt{3x} - \frac{3}{4} = 0$
5. $3\sqrt[5]{x} + 9 = 15$
6. $\sqrt[4]{8x} - 16 = -12$

In Exercises 7–12, solve the equation. Check your solution(s).

7. $\sqrt{10x+24} = x+12$
8. $x+3 = \sqrt{\frac{22}{3}x+9}$
9. $\sqrt[4]{2-25x^2} = 5x$
10. $\sqrt{4x-4} - \sqrt{x+8} = 0$
11. $\sqrt[3]{4x-1} = \sqrt[3]{6x+5}$
12. $\sqrt{4x-10} = \sqrt{2x-13} + 1$

In Exercises 13–15, solve the equation. Check your solution(s).

13. $3x^{2/3} - 30 = 18$
14. $(6x+8)^{1/2} - 3x = 0$
15. $(2x^2+8)^{1/4} = x$

In Exercises 16–18, solve the inequality.

16. $4\sqrt{x} + 3 \leq 23$
17. $\sqrt{x+10} \geq 6$
18. $-3\sqrt{x+2} < 15$

19. “Hang time” is the time you are suspended in the air during a jump. Your hang time t in seconds is given by the function $t = 0.5\sqrt{h}$, where h is the height (in feet) of the jump. A kite sailor has a hang time of 2.5 seconds. Find the height of the kite sailor's jump.

In Exercises 20–23, solve the nonlinear system. Justify your answer with a graph.

20. $y^2 = x + 2$
 $y = x + 2$
 21. $y^2 = -x + 7$
 $y = x - 1$
 22. $x^2 + y^2 = 9$
 $y = x - 3$
 23. $x^2 + y^2 = 16$
 $y = x + 4$
24. The speed s (in miles per hour) of a car can be given by $s = \sqrt{30fd}$, where f is the coefficient of friction and d is the stopping distance (in feet). The coefficient of friction for a snowy road is 0.30. You are driving 20 miles per hour and approaching an intersection. How far away from the intersection must you begin to brake?