Name _____ Class _____ Date _____

Practice 11-3

Solving Radical Equations

Solve each radical equation. Check your solutions. If there is no solution, write *no solution*.

1. $\sqrt{x} + 3 = 11$
2. $\sqrt{x + 2} = \sqrt{3x - 6}$
3. $x = \sqrt{24 - 10x}$
4. $\sqrt{4x} - 7 = 1$
5. $\sqrt{x} = \sqrt{4x - 12}$
6. $x = \sqrt{11x - 28}$
7. $\sqrt{x} = 12$
8. $x = \sqrt{12x - 32}$
9. $x = \sqrt{13x - 40}$
10. $\sqrt{3x + 5} = \sqrt{x + 1}$
11. $\sqrt{x + 3} = 5$
12. $\sqrt{6x - 4} = \sqrt{4x + 6}$
13. $2 = \sqrt{x + 6}$
14. $x = \sqrt{2 - x}$
15. $\sqrt{4x + 2} = \sqrt{x + 14}$
16. $\sqrt{x} + 8 = 9$
17. $x = \sqrt{7x + 8}$
18. $\sqrt{3x + 8} = \sqrt{2x + 12}$
19. $\sqrt{2x + 3} = 5$
20. $\sqrt{3x + 13} = \sqrt{7x - 3}$
21. $x = \sqrt{6 + 5x}$
22. $\sqrt{3x} - 5 = 4$
23. $\sqrt{3x + 4} = \sqrt{5x}$
24. $x = \sqrt{x - 12}$
25. $\sqrt{x - 4} + 3 = 9$
26. $x = \sqrt{8x + 20}$
27. $12 = \sqrt{6x}$
28. $x = \sqrt{60 - 7x}$
29. $\sqrt{x + 14} = \sqrt{6x - 1}$
30. $\sqrt{5x - 7} = \sqrt{6x + 11}$
31. $7 + \sqrt{2x} = 3$
32. $\sqrt{x + 56} = x$
33. $5 + \sqrt{x + 4} = 12$

34. The equation $d = \frac{1}{2}at^2$ gives the distance d in ft that an object travels from rest while accelerating, where a is the acceleration and t is the time.
    a. How far has an object traveled in 4 s when the acceleration is 5 ft/s^2?
    b. How long does it take an object to travel 100 ft when the acceleration is 8 ft/s^2?

35. The equation $v = 20\sqrt{t + 273}$ relates the speed v, in m/s, to the air temperature t in Celsius degrees.
    a. Find the temperature when the speed of sound is 340 m/s.
    b. Find the temperature when the speed of sound is 320 m/s.

36. The equation $V = \sqrt{\frac{Fr}{m}}$ gives the speed V in m/s of an object moving in a horizontal circle, where F is centripetal force, r is radius, and m is mass of the object.
    a. Find r when $F = 6$ N, $m = 2$ kg, and $V = 3$ m/s.
    b. Find F when $r = 1$ m, $m = 3$ kg, and $V = 2$ m/s.