

Practice 11-3

Solving Radical Equations

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

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|--------------------------------|----------------------------------|----------------------------------|
| 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.
- How far has an object traveled in 4 s when the acceleration is 5 ft/s²?
 - How long does it take an object to travel 100 ft when the acceleration is 8 ft/s²?
35. The equation $v = 20\sqrt{t+273}$ relates the speed v , in m/s, to the air temperature t in Celsius degrees.
- Find the temperature when the speed of sound is 340 m/s.
 - 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.
- Find r when $F = 6$ N, $m = 2$ kg, and $V = 3$ m/s.
 - Find F when $r = 1$ m, $m = 3$ kg, and $V = 2$ m/s.