



Examples 1–2 Solve each equation by using the Quadratic Formula. Round to the nearest tenth if necessary.

1. $x^2 - 2x - 15 = 0$

2. $x^2 - 10x + 16 = 0$

3. $x^2 - 8x = -10$

4. $x^2 + 3x = 12$

5. $10x^2 - 31x + 15 = 0$

6. $5x^2 + 5 = -13x$

Example 3 Solve each equation. State which method you used.

7. $2x^2 + 11x - 6 = 0$

8. $2x^2 - 3x - 6 = 0$

9. $9x^2 = 25$

10. $x^2 - 9x = -19$

Example 4 State the value of the discriminant for each equation. Then determine the number of real solutions of the equation.

11. $x^2 - 9x + 21 = 0$

12. $2x^2 - 11x + 10 = 0$

13. $9x^2 + 24x = -16$

14. $3x^2 - x = 8$

15. **TRAMPOLINE** Eva springs from a trampoline to dunk a basketball. Her height h in feet can be modeled by the equation $h = -16t^2 + 22.3t + 2$, where t is time in seconds. Use the discriminant to determine if Eva will reach a height of 10 feet. Explain.

Practice and Problem Solving

Extra Practice is on page R9.

Examples 1–2 Solve each equation by using the Quadratic Formula. Round to the nearest tenth if necessary.

16. $4x^2 + 5x - 6 = 0$

17. $x^2 + 16 = 0$

18. $6x^2 - 12x + 1 = 0$

19. $5x^2 - 8x = 6$

20. $2x^2 - 5x = -7$

21. $5x^2 + 21x = -18$

22. $81x^2 = 9$

23. $8x^2 + 12x = 8$

24. $4x^2 = -16x - 16$

25. $10x^2 = -7x + 6$

26. $-3x^2 = 8x - 12$

27. $2x^2 = 12x - 18$

28. **AMUSEMENT PARKS** The Demon Drop at Cedar Point in Ohio takes riders to the top of a tower and drops them 60 feet. A function that approximates this ride is $h = -16t^2 + 64t - 60$, where h is the height in feet and t is the time in seconds. About how many seconds does it take for riders to drop 60 feet?

Example 3 Solve each equation. State which method you used.

29. $2x^2 - 8x = 12$

30. $3x^2 - 24x = -36$

31. $x^2 - 3x = 10$

32. $4x^2 + 100 = 0$

33. $x^2 = -7x - 5$

34. $12 - 12x = -3x^2$

Example 4 State the value of the discriminant for each equation. Then determine the number of real solutions of the equation.

35. $0.2x^2 - 1.5x + 2.9 = 0$

36. $2x^2 - 5x + 20 = 0$

37. $x^2 - \frac{4}{5}x = 3$

38. $0.5x^2 - 2x = -2$

39. $2.25x^2 - 3x = -1$

40. $2x^2 = \frac{5}{2}x + \frac{3}{2}$

41. **CCSS MODELING** The percent of U.S. households with high-speed Internet h can be estimated by $h = -0.2n^2 + 7.2n + 1.5$, where n is the number of years since 1990.

- Use the Quadratic Formula to determine when 20% of the population will have high-speed Internet.
- Is a quadratic equation a good model for this information? Explain.

