0.7 EXERCISES

PRACTICE

Solve the following quadratic equations by factoring. See Example 1.

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

2. $3x^2 - 7x = 0$

3. $x^2 - 14x + 49 = 0$

4. $9x - 5x^2 = -2$

5. $y(2y + 9) = -9$

6. $2x^2 - 3x = x^2 + 18$

7. $(3x + 2)(x - 1) = 7 - 7x$

8. $3x^2 + 33 = 2x^2 + 14x$

9. $5x^2 + 2x + 3 = 4x^2 + 6x - 1$

10. $15x^2 + x = 2$

11. $(x - 7)^2 = 16$

12. $4x^2 - 9 = 0$

Solve the following quadratic equations by taking square roots. See Example 2.

13. $(x - 3)^2 = 9$

14. $(8t - 3)^2 = 0$

15. $(2x + 1)^2 - 7 = 0$

16. $(y - 18)^2 - 1 = 0$

17. $9 = (3s + 2)^2$

18. $(2x - 1)^2 = 8$

19. $x^2 - 4x + 4 = 49$

20. $-3(n + 7)^2 = -27$

21. $(3x - 6)^2 = 4x^2$

Solve the following quadratic equations by completing the square. See Example 3.

22. $x^2 + 8x + 7 = -8$

23. $2x^2 + 6x - 10 = 10$

24. $2x^2 + 7x - 15 = 0$

25. $4x^2 - 4x - 63 = 0$

26. $u^2 + 10u + 9 = 0$

27. $4x^2 - 56x + 195 = 0$

28. $4x^2 + 32x - 260 = 0$

29. $z^2 + 26z + 2 = -23$

30. $y^2 + 22y + 96 = 0$

Solve the following quadratic equations using the quadratic formula. See Example 4.

31. $3x^2 - 4 = -x$

32. $2.1y^2 - 3.5y = 4$

33. $a(a + 2) = -1$

34. $3x^2 - 2x = 0$

35. $6x^2 + 5x - 4 = 3x - 2$

36. $7x^2 - 4x = 51$

37. $4x^2 - 14x - 27 = 3$

Solve the following quadratic equations using any appropriate method.

38. $(z - 11)^2 = 9$

39. $x^2 + 20x + 36 = -48$

40. $256t^2 - 324 = 0$

41. $(y - 8)^2 = 36$

42. $(9y - 6)^2 = 121y^2$

43. $2x^2 + 8x - 3 = 6x$

44. $x^2 - 6x = 27$

45. $3a^2 + 12a - 576 = 0$

46. $-3(b + 5)^2 = -768$

47. $y^2 + 13y + 42 = 0$

48. $3x^2 - 6x = 0$

49. $7x^2 - 42x = 0$

50. $y^2 + 24y + 23 = 0$

51. $5x^2 - 5x - 10 = 0$

52. $4w^2 + 10w + 5 = 3w^2 + 18w - 10$

53. $\left|x^2 - 3x\right| = 2$ (**Hint:** Replace $\left|x^2 - 3x\right|$ first with $x^2 - 3x$ and solve the resulting equation, then replace it with $-\left(x^2 - 3x\right)$ and solve the resulting equation.)

54. $\left|x^2 - 8\right| = 1$

WRITING & THINKING

55. Factor the quadratic $9x^2 - 6x - 4$.

56. Factor the quadratic $4x^2 + 12x + 1$.

57. Determine b and c so that the equation $x^2 + bx + c = 0$ has the solution set $\{-3, 8\}$.

TECHNOLOGY

Use a graphing calculator to solve the following quadratic equations.

58. $5x^2 - 3x = 17$

59. $(a + 4)(4a - 3) = 5$

60. $10\pi r + \pi r^2 = 107$

61. $4.8x^2 + 3.5x - 9.2 = 0$