

45. $(x + 2)^2 + 5 = (x + 3)^2$
 46. $(x + 1)^2 + 2(x - 2) = (x + 1)(x - 2)$
 47. $(x + 2)^2 - x^2 = 4(x + 1)$
 48. $(2x + 1)^2 = 4(x^2 + x + 1)$

In Exercises 49–54, write the quadratic equation in general form.

49. $2x^2 = 3 - 8x$
 50. $x^2 = 16x$
 51. $(x - 3)^2 = 3$
 52. $13 - 3(x + 7)^2 = 0$
 53. $\frac{1}{5}(3x^2 - 10) = 18x$
 54. $x(x + 2) = 5x^2 + 1$

In Exercises 55–68, solve the quadratic equation by factoring.

55. $6x^2 + 3x = 0$
 56. $9x^2 - 1 = 0$
 57. $x^2 - 2x - 8 = 0$
 58. $x^2 - 10x + 9 = 0$
 59. $x^2 + 10x + 25 = 0$
 60. $4x^2 + 12x + 9 = 0$
 61. $3 + 5x - 2x^2 = 0$
 62. $2x^2 = 19x + 33$
 63. $x^2 + 4x = 12$
 64. $-x^2 + 8x = 12$
 65. $\frac{3}{4}x^2 + 8x + 20 = 0$
 66. $\frac{1}{8}x^2 - x - 16 = 0$
 67. $x^2 + 2ax + a^2 = 0$, a is a real number
 68. $(x + a)^2 - b^2 = 0$, a and b are real numbers

In Exercises 69–82, solve the equation by extracting square roots.

69. $x^2 = 49$
 70. $x^2 = 169$
 71. $x^2 = 11$
 72. $x^2 = 32$
 73. $3x^2 = 81$
 74. $9x^2 = 36$
 75. $(x - 12)^2 = 16$
 76. $(x + 13)^2 = 25$
 77. $(x + 2)^2 = 14$
 78. $(x - 5)^2 = 30$
 79. $(2x - 1)^2 = 18$
 80. $(4x + 7)^2 = 44$
 81. $(x - 7)^2 = (x + 3)^2$
 82. $(x + 5)^2 = (x + 4)^2$

In Exercises 83–92, solve the quadratic equation by completing the square.

83. $x^2 + 4x - 32 = 0$
 84. $x^2 - 2x - 3 = 0$
 85. $x^2 + 12x + 25 = 0$
 86. $x^2 + 8x + 14 = 0$
 87. $9x^2 - 18x = -3$
 88. $9x^2 - 12x = 14$
 89. $8 + 4x - x^2 = 0$
 90. $-x^2 + x - 1 = 0$
 91. $2x^2 + 5x - 8 = 0$
 92. $4x^2 - 4x - 99 = 0$

In Exercises 93–116, use the Quadratic Formula to solve the equation.

93. $2x^2 + x - 1 = 0$
 94. $2x^2 - x - 1 = 0$
 95. $16x^2 + 8x - 3 = 0$
 96. $25x^2 - 20x + 3 = 0$
 97. $2 + 2x - x^2 = 0$
 98. $x^2 - 10x + 22 = 0$

99. $x^2 + 14x + 44 = 0$
 100. $6x = 4 - x^2$
 101. $x^2 + 8x - 4 = 0$
 102. $4x^2 - 4x - 4 = 0$
 103. $12x - 9x^2 = -3$
 104. $16x^2 + 22 = 40x$
 105. $9x^2 + 24x + 16 = 0$
 106. $36x^2 + 24x - 7 = 0$
 107. $4x^2 + 4x = 7$
 108. $16x^2 - 40x + 5 = 0$
 109. $28x - 49x^2 = 4$
 110. $3x + x^2 - 1 = 0$
 111. $8t = 5 + 2t^2$
 112. $25h^2 + 80h + 61 = 0$
 113. $(y - 5)^2 = 2y$
 114. $(z + 6)^2 = -2z$
 115. $\frac{1}{2}x^2 + \frac{3}{8}x = 2$
 116. $(\frac{5}{7}x - 14)^2 = 8x$

In Exercises 117–124, use the Quadratic Formula to solve the equation. (Round your answer to three decimal places.)

117. $5.1x^2 - 1.7x - 3.2 = 0$
 118. $2x^2 - 2.50x - 0.42 = 0$
 119. $-0.067x^2 - 0.852x + 1.277 = 0$
 120. $-0.005x^2 + 0.101x - 0.193 = 0$
 121. $422x^2 - 506x - 347 = 0$
 122. $1100x^2 + 326x - 715 = 0$
 123. $12.67x^2 + 31.55x + 8.09 = 0$
 124. $-3.22x^2 - 0.08x + 28.651 = 0$

In Exercises 125–134, solve the equation using any convenient method.

125. $x^2 - 2x - 1 = 0$
 126. $11x^2 + 33x = 0$
 127. $(x + 3)^2 = 81$
 128. $x^2 - 14x + 49 = 0$
 129. $x^2 - x - \frac{11}{4} = 0$
 130. $x^2 + 3x - \frac{3}{4} = 0$
 131. $(x + 1)^2 = x^2$
 132. $a^2x^2 - b^2 = 0$, a and b are real numbers
 133. $3x + 4 = 2x^2 - 7$
 134. $4x^2 + 2x + 4 = 2x + 8$

In Exercises 135–152, find all solutions of the equation. Check your solutions in the original equation.

135. $4x^4 - 18x^2 = 0$
 136. $20x^3 - 125x = 0$
 137. $x^4 - 81 = 0$
 138. $x^6 - 64 = 0$
 139. $x^3 + 216 = 0$
 140. $27x^3 - 512 = 0$
 141. $5x^3 + 30x^2 + 45x = 0$
 142. $9x^4 - 24x^3 + 16x^2 = 0$
 143. $x^3 - 3x^2 - x + 3 = 0$
 144. $x^3 + 2x^2 + 3x + 6 = 0$
 145. $x^4 - x^3 + x - 1 = 0$
 146. $x^4 + 2x^3 - 8x - 16 = 0$
 147. $x^4 - 4x^2 + 3 = 0$
 148. $x^4 + 5x^2 - 36 = 0$
 149. $4x^4 - 65x^2 + 16 = 0$
 150. $36t^4 + 29t^2 - 7 = 0$
 151. $x^6 + 7x^3 - 8 = 0$
 152. $x^6 + 3x^3 + 2 = 0$