

Chapter 4

Cumulative Review (continued)

Graph the function. Describe the domain and range.

61. $f(x) = 3x^2 - 6x + 2$

62. $f(x) = -4x^2 + 16x - 1$

Tell whether the function has a minimum value or a maximum value. Then find the value.

63. $f(x) = -x^2 - 2x + 3$

64. $f(x) = 10x^2 + 60x - 1$

Find the vertex and the axis of symmetry of the graph of the function.

65. $f(x) = \frac{2}{5}(x - 3)^2$

66. $g(x) = 7(x + 5)^2$

67. $g(x) = 3(x - 5)^2 + 4$

Graph the function. Compare the graph to the graph of $f(x) = x^2$.

68. $f(x) = 7(x + 6)^2$

69. $f(x) = \frac{4}{7}(x - 2)^2 - 8$

Graph the quadratic function.

70. $f(x) = 3(x - 2)(x + 6)$

71. $h(x) = x^2 - 3x - 10$

72. Tell whether the data represents a *linear*, an *exponential*, or a *quadratic* function. Then write the function.

$$(-2, -16), (-1, -15), (0, -12), (1, -7), (2, 0)$$

Simplify the expression.

73. $\sqrt{80y^3}$

74. $\sqrt{\frac{6}{27}}$

75. $-3\sqrt{18} + 3\sqrt{8} - \sqrt{24}$

76. $\sqrt[3]{\frac{64x^5}{250y^9}}$

77. $\sqrt{3}(-5\sqrt{10} + \sqrt{6})$

78. $\frac{2}{2 + \sqrt{4}}$

Solve the equation by graphing.

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

80. $1 = x^2$

81. $x^2 + 4x = 5$

82. $7x - 12 = x^2$

Solve the equation using square roots.

83. $2x^2 = 32$

84. $2x^2 - 40 = 10$

85. $-2x^2 + 2x = 10$

86. A person in a hot air balloon drops a sandwich over the edge from a height of 64 feet. The function $h = -16t^2 + 64$ represents the height h (in feet) of the sandwich after t seconds. How long does it take the sandwich to hit the ground?

**Chapter
4****Cumulative Review** (continued)

Solve the equation by completing the square. Round your solutions to the nearest hundredth, if necessary.

87. $x^2 + 3x + 2 = 0$

88. $y^2 + 12y + 20 = 0$

89. $w^2 + 16w - 22 = 0$

90. $t^2 + 10t + 14 = -7$

91. $7n^2 - 14n - 50 = 6$

92. $3h^2 + 20h + 36 = 4$

93. You want to enclose a rectangular vegetable garden with 60 feet of fence. How should you lay out the fence to maximize area?

Solve the equation using the Quadratic Formula. Round your solutions to the nearest tenth, if necessary.

94. $4x^2 + 8x + 7 = 4$

95. $2y^2 + 3y - 20 = 0$

96. $2w^2 - 7w - 13 = -10$

97. $7z^2 + 4z - 10 = 6$

Find the number of x-intercepts of the graph of the function.

98. $y = x^2 - 2x + 10$

99. $y = x^2 + 4x + 4$

100. $y = x^2 - 10x - 2$

101. $y = 2x^2 - 3x + 4$

Add or subtract. Write the answer in standard form.

102. $(12 + 4i) + (-6 + 11i)$

103. $(1 + 15i) - (13 + 5i)$

104. $(-7 + 3i) - (-2 + 8i)$

105. $(4 - 9i) + (3 - 9i)$

106. $(6 - 7i) + (3 + 14i)$

107. $(-5 - 7i) - (7 + i)$

Multiply. Write the answer in standard form.

108. $-11i(-2 + i)$

109. $8(2 + 9i)$

110. $6i(-4 + 10i)$

111. $(2 + 7i)(-2 + 5i)$

112. $(-8 + 3i)(-8 - 5i)$

113. $(3 + 5i)(4 - 7i)$

Solve the system of equations by graphing, elimination, or substitution, if possible.

114. $y = -x^2 + 6$
 $y = -2x - 2$

115. $y = 2x^2 + 3x - 6$
 $y = -x^2$

116. $y = 2x^2 - 16x + 35$
 $y = -x^2 + 2x - 2$

117. A rectangle has an area of 36 square inches and a perimeter of 30 inches. Find the dimensions of the rectangle.