Graph the function. Label the vertex and axis of symmetry. *(p. 635)*

47. $y = x^2 - 4x + 1$ **48.** $y = 3x^2 + 6x + 4$ **49.** $y = -x^2 - 4x + 10$

Solve the equation. Round your solutions to the nearest hundredth, if necessary. *(pp. 643, 652, 663, 671)*

50. $5x^2 = 720$ **51.** $-x^2 + 12 = 1$ **52.** $x^2 + 6x - 13 = 0$

53. $-2x^2 + 7x - 3 = 0$ **54.** $4x^2 - 9x = 9$ **55.** $-7x^2 + 7x + 3 = 4x - 1$

56. SPORTS The Pan American Games is a sports event that is held every four years. Athletes from countries in North America, Central America, and South America compete in the games. The table shows the number c of countries that participated in each Pan American Games as a function of the time t (in years) since 1951. Graph the function. *(p. 43)*

Years since 1951, t	0	4	8	12	16	20	24	28	32
Countries, c	21	22	25	22	29	32	33	34	36

57. INCOME A salesperson earns a 5% commission on the sales of computers. If the salesperson's computer sales total $9500, how much is the commission? *(p. 176)*

58. CUSTOM PRINTING You create a design for a T-shirt. The table shows the cost for printing your design on T-shirts at a printing company. The printing company requires that your design be printed on a minimum of 6 T-shirts. *(p. 302)*

T-shirts	6	7	8	9	10
Cost (dollars)	78	81	84	87	90

a. *Explain* why the situation can be modeled by a linear equation.

b. Write an equation in point-slope form that gives the cost of the T-shirts as a function of the number of T-shirts printed.

59. GEOMETRY A rectangle has a perimeter of 54 inches. Its length is 3 more than twice its width. Find the dimensions of the rectangle. *(p. 435)*

60. SCHOOL ENROLLMENT In 1990, 5000 students were enrolled at a school. The number of students enrolled at the school increased by about 2% per year from 1990 to 2005. Write a model for the number of students enrolled at the school over time. According to the model, how many students were enrolled at the school in 2005? *(p. 520)*

61. LANDSCAPING An arc of water sprayed from a lawn sprinkler can be modeled by the graph of the equation $y = -0.05x^2 + 0.9x$ where x is the distance (in feet) from the sprinkler and y is the height (in feet) of the arc.

a. Graph the function. Label the vertex and axis of symmetry. *(p. 635)*

b. How far from the sprinkler does the water hit the ground? *(p. 643)*