

Complete parts a–c for each quadratic function.

a. Find the y -intercept, the equation of the axis of symmetry, and the x -coordinate of the vertex.

b. Make a table of values that includes the vertex.

c. Use this information to graph the function.

33. $f(x) = 2x^2 - 6x - 9$

34. $f(x) = -3x^2 - 9x + 2$

35. $f(x) = -4x^2 + 5x$

36. $f(x) = 2x^2 + 11x$

37. $f(x) = 0.25x^2 + 3x + 4$

38. $f(x) = -0.75x^2 + 4x + 6$

39. $f(x) = \frac{3}{2}x^2 + 4x - \frac{5}{2}$

40. $f(x) = \frac{2}{3}x^2 - \frac{7}{3}x + 9$

41. **FINANCIAL LITERACY** A babysitting club sits for 50 different families. They would like to increase their current rate of \$9.50 per hour. After surveying the families, the club finds that the number of families will decrease by about 2 for each \$0.50 increase in the hourly rate.

a. Write a quadratic function that models this situation.

b. State the domain and range of this function as it applies to the situation.

c. What hourly rate will maximize the club's income? Is this reasonable?

d. What is the maximum income the club can expect to make?

42. **ACTIVITIES** Last year, 300 people attended the Franklin High School Drama Club's winter play. The ticket price was \$8. The advisor estimates that 20 fewer people would attend for each \$1 increase in ticket price.

a. What ticket price would give the greatest income for the Drama Club?

b. If the Drama Club raised its tickets to this price, how much income should it expect to bring in?

CCSS TOOLS Use a calculator to find the maximum or minimum of each function. Round to the nearest hundredth if necessary.

43. $f(x) = -9x^2 - 12x + 19$

44. $f(x) = 12x^2 - 21x + 8$

45. $f(x) = -8.3x^2 + 14x - 6$

46. $f(x) = 9.7x^2 - 13x - 9$

47. $f(x) = 28x - 15 - 18x^2$

48. $f(x) = -16 - 14x - 12x^2$

Determine whether each function has a *maximum* or *minimum* value, and find that value. Then state the domain and range of the function.

49. $f(x) = -5x^2 + 4x - 8$

50. $f(x) = -4x^2 - 3x + 2$

51. $f(x) = -9 + 3x + 6x^2$

52. $f(x) = 2x - 5 - 4x^2$

53. $f(x) = \frac{2}{3}x^2 + 6x - 10$

54. $f(x) = -\frac{3}{5}x^2 + 4x - 8$

Determine the function represented by each graph.

