Solve the equation by factoring.
1) \(x^2 - x = 12\)  
2) \(12n^2 + 36n = 0\)  
3) \(5k^2 - 39k - 8 = 0\)

Solve the equation by taking square roots.
4) \(2z^2 - 98 = 0\)  
5) \(y^2 = 18\)

Use the quadratic formula to solve the equation.
6) \(4x^2 - 4x - 8 = 0\)

Use the quadratic formula to solve the equation.
7) \(x^2 + x + 6 = 0\)

Find the coordinates of the vertex and the equation of the axis of symmetry for the parabola given by the equation. Then sketch its graph.
8) \(y = -x^2 - 1\)
9) \( y = 2x^2 - 4x + 6 \)

Use the given graph to state the domain and range of the function.

10) \( f(x) = x^2 + 2x + 1 \)

11) \( f(x) = -x^2 + 2x - 4 \)

Find the coordinates of the \( x \)-intercepts of the parabola given by the equation.

12) \( y = 45x^2 + 15x \)
13) \( y = x^2 + 2x - 8 \)

Find the zeros of the function.

14) \( f(x) = 10x^2 + 36x + 18 \)

Sketch the graph of the quadratic function. Identify the vertex, x- and y-intercepts, and the equation for the axis of symmetry.

15) \( f(x) = -x^2 + 2x + 8 \)

Determine whether the given quadratic function has a minimum value or maximum value. Then find the minimum or maximum value.

16) \( f(x) = -x^2 - 2x + 1 \)

17) \( f(x) = 3x^2 - 2x - 4 \)

Solve the problem.

18) The owner of a video store has determined that the cost \( C \), in dollars, of operating the store is approximately given by \( C(x) = 2x^2 - 32x + 510 \), where \( x \) is the number of videos rented daily. Find the lowest cost to the nearest dollar.

19) April shoots an arrow upward into the air at a speed of 64 feet per second from a platform that is 33 feet high. The height of the arrow is given by the function \( h(t) = -16t^2 + 64t + 33 \), where \( t \) is the time in seconds. What is the maximum height of the arrow?