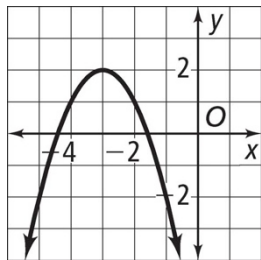


What is the vertex of the graph below? Is it a minimum or maximum? What is the graph's line of symmetry?



If the graph is a transformation of the first, identify the transformation as a stretch, compression, reflection, or translation.

$$f(x) = x^2, g(x) = (x - 2)^2 - 8$$

$$f(x) = (x + 3)^2; g(x) = (2x + 6)^2$$

Solve each equation by graphing the related function and write the number of solutions.

$$x^2 + 3 = 0$$

$$x^2 + 4x + 4 = 0$$

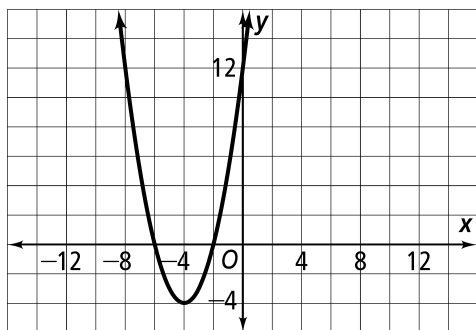
$$x^2 + x - 2 = 0$$

Find the value of  $c$  such that each expression is a perfect-square trinomial.

$$x^2 - 14x + c$$

$$x^2 + 3x + c$$

Write an equation in vertex form of the following graph.



Find the axis of symmetry and the vertex of the equation  $y = 2x^2 - 4x + 1$ .

For each quadratic function in vertex form, identify the vertex of the parabola, the axis of symmetry, whether the parabola opens upward or downward, and the domain and range of the function.

$$f(x) = -(x - 15)^2 + 24$$

$$f(x) = -3/4(x - 2)^2 - 12$$

Find the zeros of the following equations:

$$x^2 - x - 20 = 0$$

$$x^2 - 5x = 14$$

$$6x^2 + 13x = 5$$

Use the quadratic formula to solve each equation. Also find the discriminant and the number of solutions.

$$x^2 + 32x + 175 = 0$$

$$4x^2 + 24x = -35$$

$$3x^2 - 5x = -6$$

$$9x^2 + 4 = 12x$$

How does changes in  $a, b, c$  affect the graph of  $ax^2 + bx + c$