1. Given $f(x) = -2x^2 - 4x + 7$,

   a. What form is this quadratic equation in?

   b. Find the vertex. Is this a maximum or a minimum?

   c. Find the roots using the quadratic formula

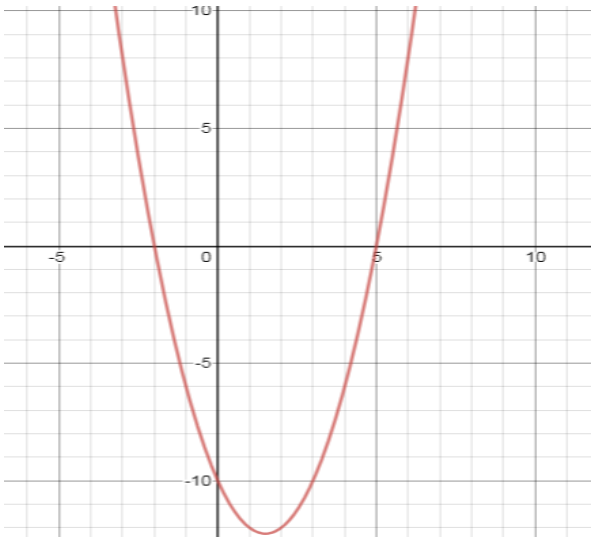
   d. State the y-intercept

   e. Does this parabola open up or down? How do you know by just looking at the equation?

2. The roots for a quadratic function are given. Write an equation for each function in factored Form (Intercepts Form) if a = 2

   $r_1 = -6$ and $r_2 = 9$

3. Write an equation for the function of the graph given below in factored form and standard form Assume a = 1

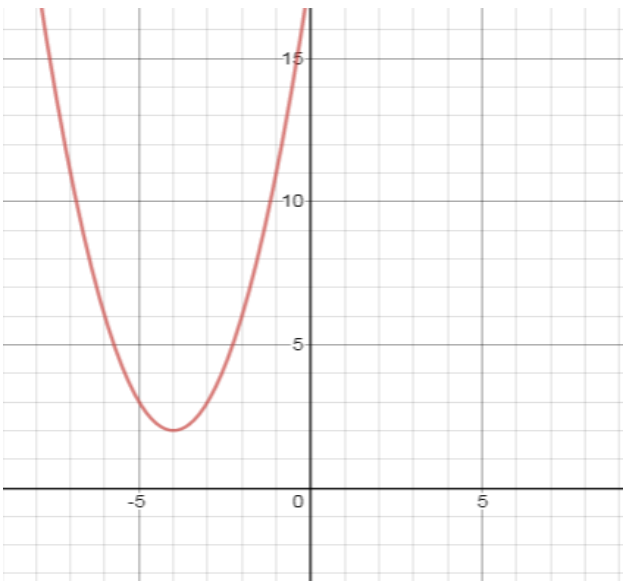


4. If $a = 1$ and the vertex is (-2, 6), write the equation of the quadratic function in vertex form.

5. Find the vertex of the following parabola. Is it a minimum or a maximum? What is the equation of the axis of symmetry?

$$y = 2(x+1)^2 - 5$$

6. Write the equation in vertex form and standard form of the function shown in the graph below.
   Assume a = 1



1. Given $f(x) = -2x^2 - 4x + 7$,

   a. What form is this quadratic equation in? Standard Form

   b. Find the vertex. Is this a maximum or a minimum?

   $x = \frac{-(-4)}{2(-2)}$ $x = -1$ (-1, 9) Maximum , it opens down

   c. Find the roots using the quadratic formula

   $x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(-2)(7)}}{2(-2)}$ $x = \frac{4 \pm \sqrt{72}}{-4}$ $x = \frac{4 \pm 6\sqrt{2}}{-4}$ $x = \frac{2 \pm 3\sqrt{2}}{-2}$

   d. State the y-intercept

   (0, 7)

   e. Does this parabola open up or down? How do you know by just looking at the equation?

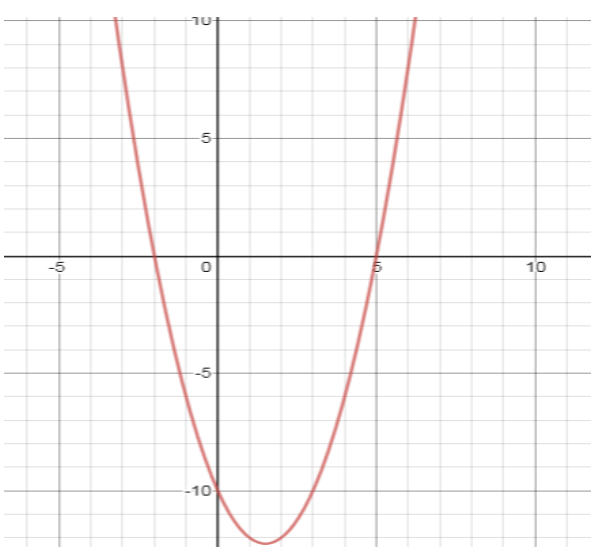
   It opens down because the leading coefficient is negative

2. The roots for a quadratic function are given. Write an equation for each function in factored Form (Intercepts Form) if a = 2

   $r_1 = -6$ and $r_2 = 9$

   $y = 2(x + 6)(x - 9)$

5. Write an equation for the function of the graph given below in factored form and standard form Assume a = 1



$r_1 = -2$

$r_2 = 5$

$y = (x + 2)(x - 5)$

$y = x^2 - 3x - 10$

6. If $a = 1$ and the vertex is (-2, 6), write the equation of the quadratic function in vertex form.

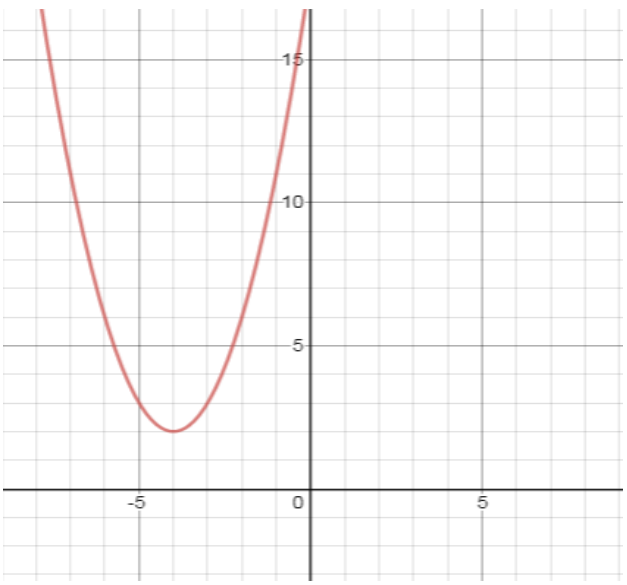
$y = (x + 2)^2 + 6$

5. Find the vertex of the following parabola. Is it a minimum or a maximum? What is the equation of the axis of symmetry?

$y = 2(x + 1)^2 - 5$

$(-1, -5)$, minimum because the parabola opens up.
A.O.S. is $x = -1$

A. Write the equation in vertex form and standard form of the function shown in the graph below. Assume a = 1



Vertex: $(-4, 2)$

$y = (x + 4)^2 + 2$

$y = x^2 + 8x + 18$