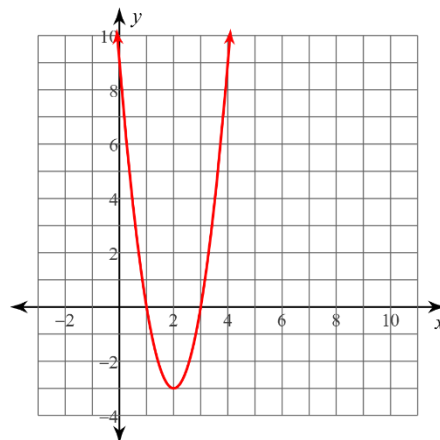


**3.REV.1 – End of Chapter Review**

Past due on: \_\_\_\_\_ Period: \_\_\_\_\_

1. Which statements are true about the graph shown? Select ALL that apply.
- The equation shown in the graph is  $y = 3(x + 2)^2 - 3$ .
  - The graph can be represented by  $y = 3(x - 3)(x - 1)$ .
  - The parabola is that of  $y = 3x^2 - 12x + 9$ .
  - The graph is symmetric with respect to the line  $x = 2$ .
  - The vertex of the parabola represents the maximum of the function shown in the graph.
  - The leading coefficient of the graphed quadratic equation is negative.



2. Consider the quadratic function:  $Q(x) = -0.5(x + 6)^2 - 4$  and identify the following:
- Vertex
  - Does the vertex represent a maximum or a minimum?
  - Axis of symmetry
  - $y$ -intercept
  - Is the graph is concave up or concave down?
  - Range

For each quadratic function, find the zeros, if any, and the  $y$ -intercept. *If necessary, round to two decimal places.*

3.  $q(x) = -3x^2 + 24x - 36$

4.  $u(x) = 6x^2 + 30x - 44$

5.  $a(x) = -2x^2 + 13x - 15$

6.  $d(x) = 0.3x^2 - 0.6x - 7.2$

Complete the square and write the quadratic function in vertex form. Then identify the vertex, the equation of the axis of symmetry, the  $y$ -intercept, whether the graph is concave up or concave down, and the range of the function.

7.  $r(x) = 5x^2 + 30x - 10$

8.  $a(x) = -4x^2 + 8x - 6$

Write the equation of the parabola described. Use the appropriate form – factored form or vertex form – based on the information provided. Is the parabola concave up or concave down?

9. The parabola has zeros at  $x = -1$  &  $x = 3$  and a  $y$ -intercept of  $(0, -3)$ .

10. The parabola has a vertex at  $(-6, 9)$  and an  $x$ -intercept of  $(-15, 0)$ .

11. The parabola has a  $y$ -intercept of  $(0, -4)$  and its maximum occurs at  $(2, 0)$ .

12. The parabola has a vertex of  $(6, 5)$  and passes through the point  $(10, 8)$ .

13. A firework is launched into the air with a velocity of 58.8 meters per second from a height of 2 meters. Its height,  $h$ , in meters, is given by  $h(t) = -4.9t^2 + 58.8t + 2$ , where  $t$  is the time in seconds.

a. When does the firework reach a height of 100 meters?

b. The firework explodes at its highest point. How high is it? How long after being launched does the firework explode? *Hint: Find the vertex.*