Algebra 2 **Name**_____

WS: Chapter 2 Review **Date**_____**Block**_____

All work should be clearly labeled and done on separate paper.

Station 1

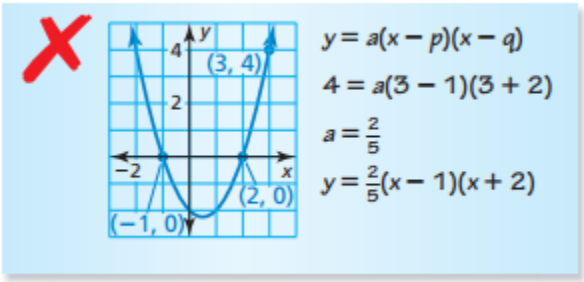
1. Describe the transformations of $f(x) = x^2$ represented by $g(x) = (x + 4)^2$
2. Describe the transformations of $f(x) = x^2$ represented by $g(x) = -3(x + 2)^2 - 1$
3. Identify the vertex and axis of symmetry of $g(x) = 0.75x^2 - 5$
4. Explain when to use intercept form and when to use vertex form when writing an equation of a parabola.
5. Two quadratic functions have graphs with vertices (2, 4) and (2, -3). Explain why you can not use the axes of symmetry to distinguish between the two functions.
6. A parabola has an axis of symmetry of $x = 3$ and passes through the point (2, 1). Find another point that lies on the graph of the parabola. Explain your reasoning.
7. Identify the vertex and axis of symmetry of $g(x) = 3(x - 1)^2 - 4$
8. Describe the transformations of $f(x) = x^2$ represented by $g(x) = (x - 7)^2 + 2$

Station 2

1. Write a rule for g described by the transformations of the graph of f.

   $f(x) = x^2$; vertical stretch by a factor of 4 and a reflection in the x-axis, followed by a translation 2 units up.

2. Identify the vertex and axis of symmetry of $f(x) = (x - 3)(x + 7)$.
3. Write an equation of the parabola that passes through the points (-1, 4), (0, 1), and (1, 4).
4. Describe and correct the error in writing an equation of the parabola.



5. A quadratic function is increasing to the left of $x = 2$ and decreasing to the right of $x = 2$. Will the vertex be the highest or lowest point on the graph of the parabola? Explain.
6. Describe the transformation of $f(x) = x^2$ represented by $g(x) = -(3x)^2 + 2$.

Station 3

1. Write a rule for g described by the transformations of the graph of f.

   $f(x) = (x + 6)^2 + 3$; horizontal shrink by a factor of ½ and a translation 1 unit down.

2. Write an equation for the parabola with the given characteristics:

   Passes through (1, 12) and has vertex (10, -4)

3. Write an equation for the parabola with the given characteristics:

   Passes through (4, 3) and has x-intercepts of -1 and 5

4. Write an equation for the parabola with the given characteristics:

   Passes through (0, 280), (1, 264), and (3, 136)

Station 4

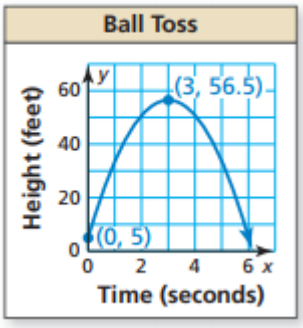
1. Identify the vertex and axis of symmetry of the following function. Find the minimum or maximum value of f. Describe where the function is increasing and decreasing. Work MUST be shown.

   $f(x) = -2x^2 + 16x + 3$

2. Write an equation for the parabola with the given characteristics:

   Passes through (-2, 7), (1, 10), and (2, 27)

3. Two balls are thrown in the air. The path of the first ball is represented in the graph. The second ball is released 1.5 feet higher than the first ball and after 3 seconds reaches its maximum height 5 feet lower than the first ball. Write an equation for the second ball.



4. The table shows the estimated profits y (in dollars) for a concert when the charge is x dollars per ticket. Write and evaluate a function to determine what the charge per ticket should be to maximize the profit.

Ticket price, x	2	5	8	11	14	17
Profit, y	2600	6500	8600	8900	7400	4100