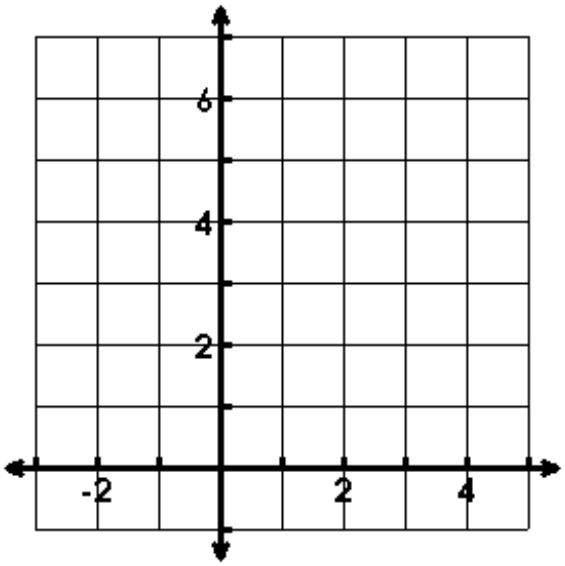
Name: _____ Date: _____

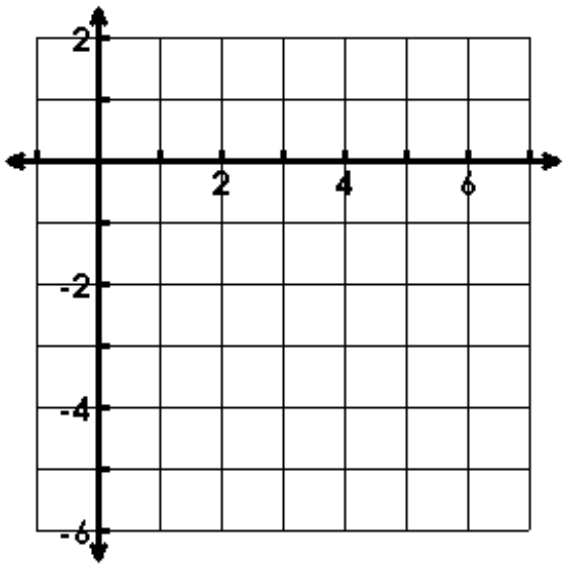
Graphing Quadratic Equations in Standard Form

1. $f(x) = x^2 - 4x + 5$ *Graph By Hand*



Characteristics	
A.O.S.	
Vertex:	
Domain:	
Range:	
Solution(s):	
y-intercept:	
Interval of Increase:	
Interval of Decrease:	
Rate of change from $3 \le x \le 4$:	
Rate of change from [0, 2]:	
Which rate of change is steeper? Why?	

2. $f(x) = -x^2 + 6x - 8$ *Graph in Calc*



Characteristics	
A.O.S.	
Vertex:	
Domain:	
Range:	
Zero(s):	
y-intercept:	
Interval of Increase:	
Interval of Decrease:	
Rate of change from [3, 4]:	
Rate of change from $4 \le x \le 5$:	
Which rate of change is steeper? Why?	

3. A baker has modeled the monthly operating costs for making wedding cakes by the function $y = 0.5x^2 – 12x + 150$ where y is the total cost in dollars and x is the number of cakes prepared.

   A. Find the **vertex** and **axis of symmetry**. *The vertex would represent (Cakes Prepared, $Cost).*

   B. What is the **minimum** monthly operating **cost**?

   C. How many **cakes** should be prepared each month to yield the minimum operating cost?

   D. What are the baker's costs if he/she makes **no cakes** (**zero**)?

4. The path of a soccer ball is modeled by the function $h(x) = -0.005x^2 + 0.25x$, where h is the height in meters and x is the horizontal distance that the ball travels in meters. What is the **maximum height** that the ball reaches? *Hint: start by finding the vertex.*

5. The function $A(x) = x(10 – x)$ describes the area A of a rectangular flower garden, where x is its width in yards. What is the maximum area of the garden?
   Hint: get your equation in standard form 1st and then start finding the vertex.

6. A record label uses the following function to model the sales of a new release.

   $$a(t) = -90t^2 + 8100t$$

   The number of albums sold is a function of time, t, in days. On which **day** were the **most** albums sold? What is the **maximum** number of **albums** sold on that day?