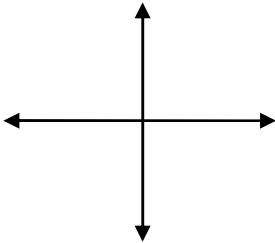
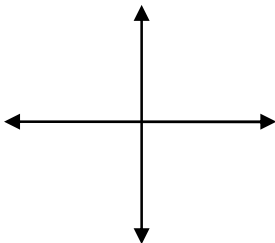


Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples
QUADRATIC FUNCTION	- Standard Form of a Quadratic Equation: _____ - A quadratic equation creates a U-shaped curve called a parabola.
<i>Examples</i>	Using your graphing calculator, sketch the following functions: $f(x) = x^2 + 2x - 5$  $f(x) = -x^2 + 3x + 7$  If "a" is positive, then the parabola will open up. If "a" is negative, then the parabola will open down.
<i>Parts of a</i> PARABOLA	- The vertical line that divides the parabola into two equal parts is called the axis of symmetry. Axis of Symmetry Formula: _____ - The turning point of the parabola is called the vertex. When the vertex is the lowest point, it's called a minimum, when it's the highest point, it's called a maximum. Label these parts on the graphs above.
Directions: Determine whether each function has a minimum or maximum. Then find the axis of symmetry and vertex.	
1. $f(x) = 4x^2$ Minimum / Maximum _____ Axis of Symmetry: _____ Vertex: _____	2. $f(x) = -x^2 + 6x$ Minimum / Maximum _____ Axis of Symmetry: _____ Vertex: _____
3. $f(x) = -2x^2 + 7$ Minimum / Maximum _____ Axis of Symmetry: _____ Vertex: _____	4. $f(x) = x^2 - 8x + 9$ Minimum / Maximum _____ Axis of Symmetry: _____ Vertex: _____

GRAPHING

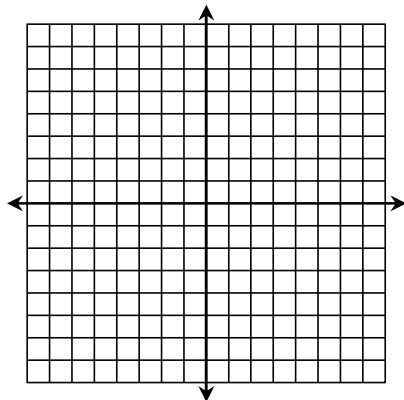
by Table

- ① Find the **AXIS OF SYMMETRY** and **VERTEX**.
- ② **PLACE THE VERTEX AS THE MIDDLE ROW.**
Number up and down, then complete the table.
- ③ **GRAPH!**

Directions: Graph each function. State the domain and range.

5. $f(x) = -3x^2$

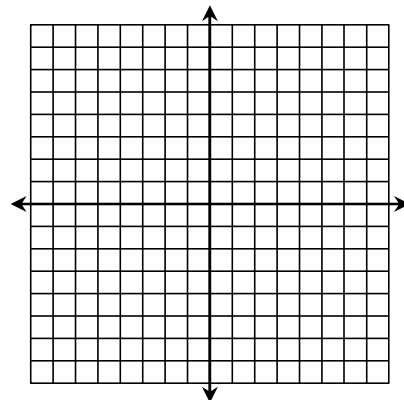
x	$f(x)$



$D =$ _____ $R =$ _____

6. $f(x) = x^2 - 6x + 11$

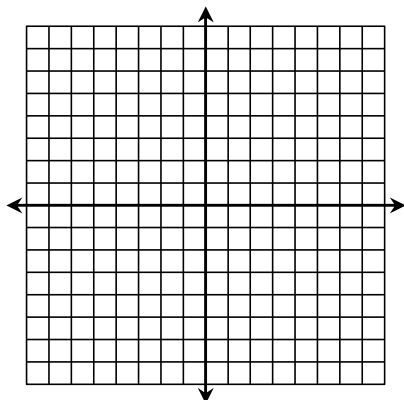
x	$f(x)$



$D =$ _____ $R =$ _____

7. $f(x) = 2x^2 - 8x + 6$

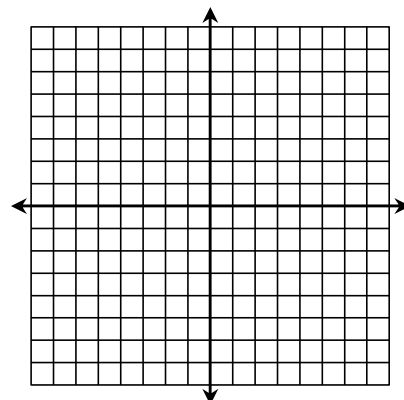
x	$f(x)$



$D =$ _____ $R =$ _____

8. $f(x) = -x^2 + 5$

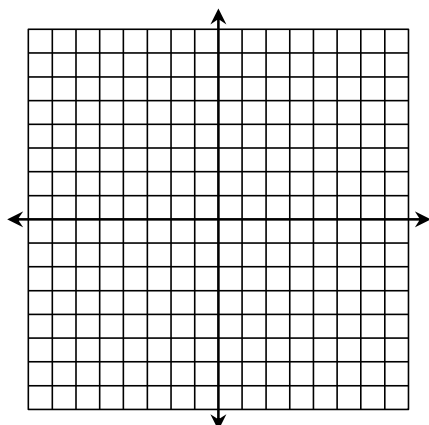
x	$f(x)$



$D =$ _____ $R =$ _____

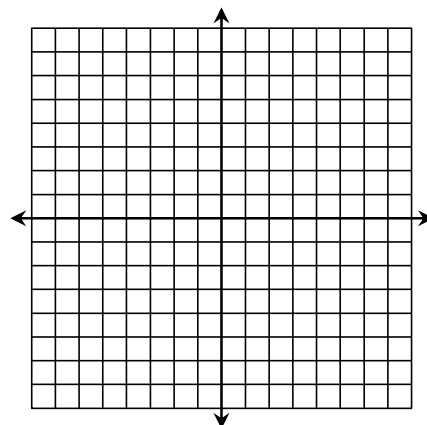
9. $f(x) = -\frac{1}{2}x^2 - x$

x	$f(x)$



$D =$ _____ $R =$ _____

10. $f(x) = \begin{cases} 2x + 5 & \text{if } x < -4 \\ x^2 + 3x & \text{if } x \geq -4 \end{cases}$



$D =$ _____ $R =$ _____

Name:

Date:

Topic:

Class:

Main Ideas/Questions

Notes/Examples

GRAPHING QUADRATIC

inequalities

①

Create a **TABLE OF VALUES**. Recall that the vertex should be in the middle row.

②

GRAPH! Use a dashed line for $<$ and $>$ symbols and a solid line for $\leq$ and $\geq$ symbols.

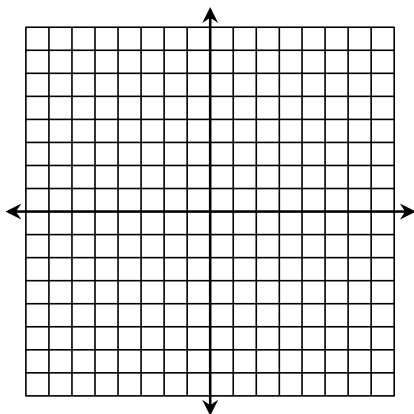
③

SHADE! Assuming y is to the left, shade above the line for $>$ or $\geq$ symbols and below the line for $<$ or $\leq$ symbols.

Directions: Graph each inequality.

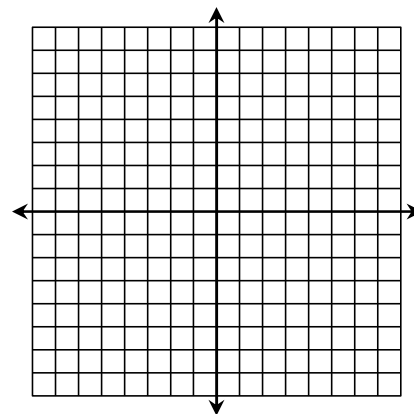
1. $y > x^2 + 2x - 2$

x	y



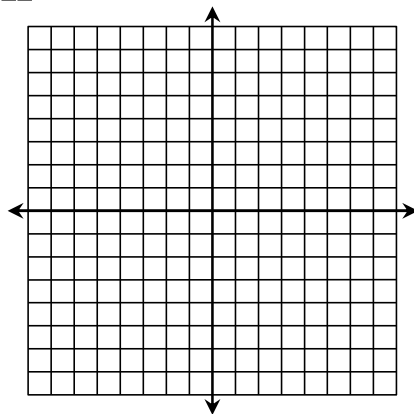
2. $y \leq -x^2 + 4x - 1$

x	y



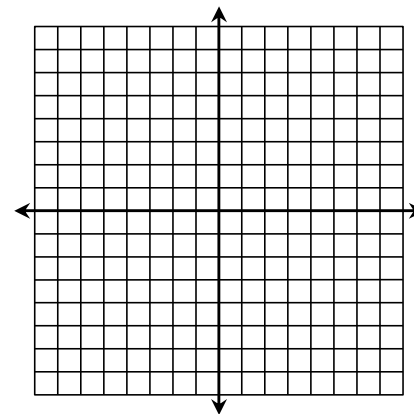
3. $y \geq -3x^2 + 18x - 22$

x	y



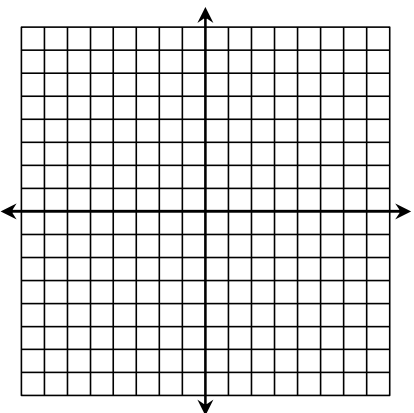
4. $y < x^2 + 6$

x	y



5. $y \leq -2x^2 - 2x$

x	y



6. $y > \frac{1}{2}x^2 - 4x + 12$

x	y

