

Name:

Date:

Period:

Quadratic Functions

_____ form
 $f(x) = ax^2 + bx + c$

_____ form
 $f(x) = a(x - h)^2 + k$

Axis of symmetry: _____

Axis of symmetry: _____

Vertex: _____

Vertex: _____

The following apply to **either** format

To find the **Y-INTERCEPT** of ANY parabola:

To find the **X-INTERCEPT(S)** of ANY parabola (also called the roots/zeros):

MAXIMUM or a **MINIMUM** (hint: sketch a "smile" or a "frown"):

To **FIND** the maximum or minimum value:

The **DOMAIN*** is the set of all allowable x-values. To find the domain, see if there are values of x that can cause the function to "misbehave" and exclude them from your domain. If there are no limitations, the domain is all real #s or $(-\infty, \infty)$.

The **RANGE*** will not be all y values because the parabola will have a high point (maximum) or a low point (minimum). The **y-value** of the vertex will give you the limitations for the range.

*For the **DOMAIN/RANGE**, be mindful of the format being requested (ie. Set notation, interval notation, compound inequality)

Examples:

$y = 3(x - 4)^2 - 2$

$y = -2(x + 1)^2 + 4$

$f(x) = -x^2 + 7$

<u>Examples:</u>	$y = 3(x - 4)^2 - 2$	$y = -2(x + 1)^2 + 4$	$f(x) = -x^2 + 7$
Axis of Symmetry:			
Vertex:			
Y-Intercept:			
Maximum or Minimum:	Max or Min	Max or Min	Max or Min
State the Value:	Value: _____	Value: _____	Value: _____
Domain and Range: (Use interval notation)	D: _____ R: _____	D: _____ R: _____	D: _____ R: _____

Complete the tables:

	#1. $y = 1.5(x + 2)^2$	#2. $f(x) = -(x - 1)^2 + 5$	#3. $f(x) = (x - 125)^2 + 125$
Axis of Symmetry			
Vertex:			
Y-Intercept:			
Maximum or Minimum	Max or Min	Max or Min	Max or Min
State the Value:	Value: _____	Value: _____	Value: _____
Domain (Interval Notation):	D: _____	D: _____	D: _____
Range (Interval Notation):	R: _____	R: _____	R: _____
What does the equation do to the parent graph?			

	#4. $y = x^2 + 2x + 1$	#5. $f(x) = -x^2 - 4x + 4$	#6. $y = 2x^2 + 5$
Axis of Symmetry:			
Vertex:			
Y-Intercept:			
Maximum or Minimum	Max or Min	Max or Min	Max or Min
State the Value:	Value: _____	Value: _____	Value: _____
Domain (Set Notation):	D: _____	D: _____	D: _____
Range (Set Notation):	R: _____	R: _____	R: _____
What does the equation do to the parent graph?			