

NOTES: Section 4.2 – Graph Quadratic Functions in Vertex or Intercept Form

Goals: #1 - I can graph a quadratic function from vertex form.



#2 - I can graph a quadratic function from intercept form.

#3 - I can take a quadratic in either intercept or vertex form, and rewrite it in standard form.

Homework: Lesson 4.2 Worksheet

Warm Up: Identify the graph's axis of symmetry, vertex, y -intercept, whether the graph opens up or down, and its maximum/minimum value. Then graph the function by completing the table.

1. $y = -\frac{3}{4}x^2 - 4x - 1$

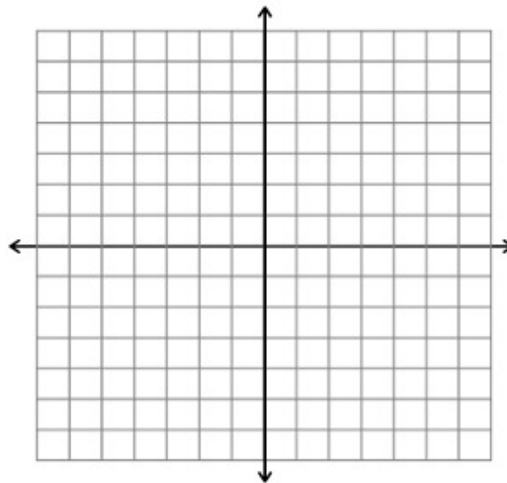
AOS: _____

vertex: _____

y -int: _____

opens: _____

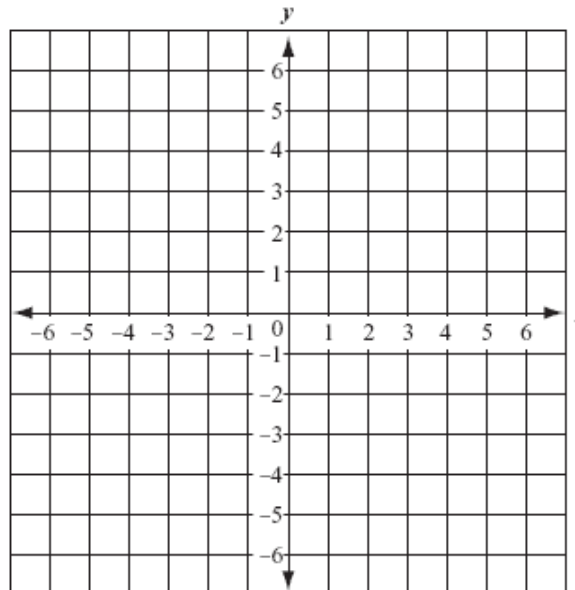
max./min. value: _____



x					
y					

Exploration #1: Graph $-4(x - 2)^2 + 4$ using a table of values.

x	y



1. What is the vertex?

2. What do you notice about your graph?

Name: _____ Hour: _____ Date: _____

Notes:

We can use the following properties to graph *any* quadratic function in _____ form.

$$y = a(x - h)^2 + k$$

- The graph opens _____ if _____ and opens _____ if _____.
- The graph gets _____ if _____ and _____ if _____.
- The _____ is _____.
- The _____ is _____.

Example #1: Graph $y = -\frac{1}{4}(x + 2)^2 + 5$

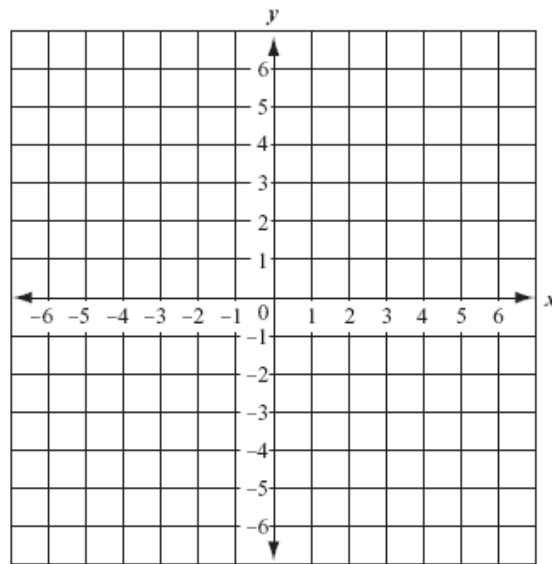
AOS: _____

Vertex: _____

y-int: _____

Opens: _____

Max./Min. Value: _____



x					
y					

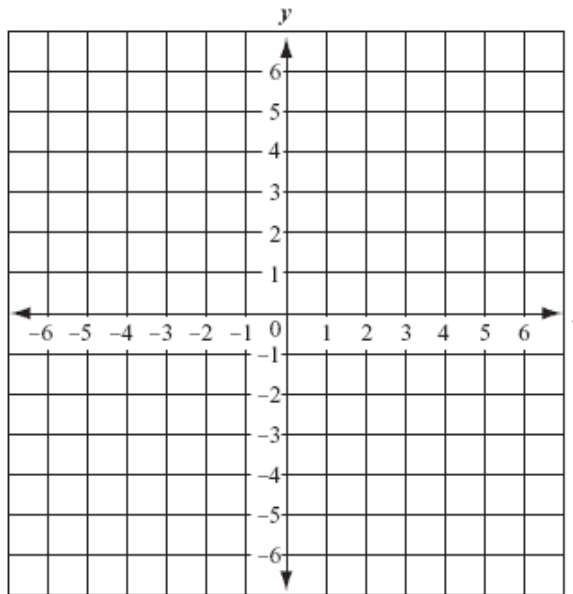
Work:

Example #2: Tell whether the function $y = (x - 2)^2 + 3$ has a maximum or minimum value. Then find its value.

Name: _____ Hour: _____ Date: _____

Exploration #2: Graph $-2(x + 3)(x + 5)$ using a table of values.

x	y



1. What are the x -intercepts?
2. What is the AOS?
3. What do you notice about your graph?

Notes:

We can use the following properties to graph *any* quadratic function in _____ form.

$$y = a(x - p)(x - q)$$

- The graph opens _____ if _____ and opens _____ if _____.
- The graph gets _____ if _____ and _____ if _____.
- The _____ are _____.
- The _____ is halfway between _____ and _____.

It has the equation _____.

Forms of Quadratic Functions	
Standard Form	
Vertex Form	
Intercept Form	

Name: _____ Hour: _____ Date: _____

Example #3: Graph $y = 2(x + 3)(x - 1)$.

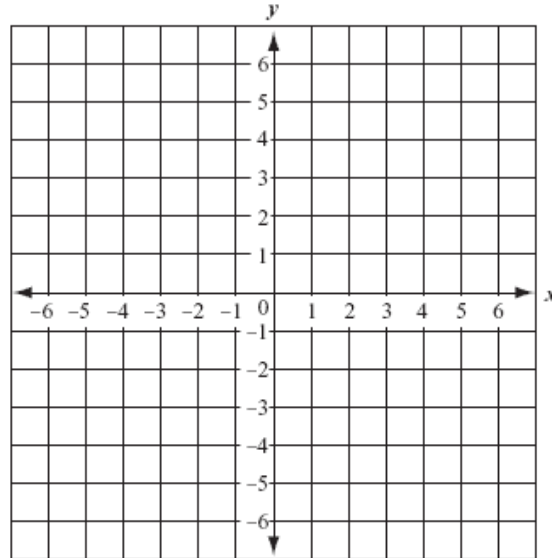
AOS: _____

Vertex: _____

Opens: _____

Max./Min. Value: _____

x					
y					



Work:

Example #4: Tell whether the function $y = -4(x + 3)(x + 7)$ has a maximum or minimum value. Then find its value.

Example #5: Write the quadratic function in standard form.

1. $y = -2(x + 5)(x - 8)$

2. $y = 4(x - 1)^2 + 9$

3. $y = 2(x + 5)(x + 4)$

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