NOTES Ch 9A Lesson 2 – Graphing Parabolas (Quadratics) in Standard Form

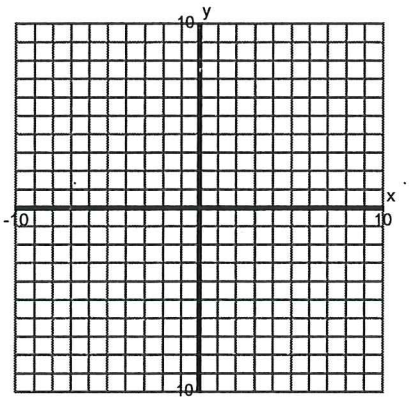
$$y = ax^2 + bx + c$$

STEPS:

1. Identify $a =$ ____ $b =$ ____ $c =$ ____
2. y-intercept = _____
3. Find the _____ of the vertex using _____
4. Plug that answer into the original equation to find the _____ of the vertex
5. Write the ordered pair for the vertex (x, y)
6. Write your vertex in the table and choose two x-values bigger than the x-value in your vertex. Then find their y-values.
7. Use symmetry to find two more points.
8. Connect points with a _____ and put _____ on both ends.

EXAMPLES:

1. $y = x^2 - 6x + 10$



$a =$ ____ $b =$ ____ $c =$ ____

Opens: up or down

Normal, Narrow (skinny), or Wide (fat)

Maximum or Minimum

y-intercept: _____

$x = \frac{-b}{2a} =$ _____ (vertex)

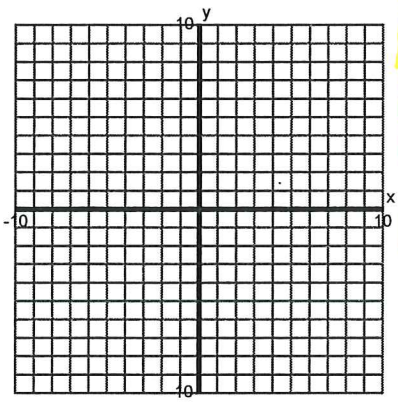
Plug back into equation to find y (vertex):

Vertex: (____, ____)

Axis of symmetry: $x =$ ____

x	y

2. $y = -x^2 + 2x + 2$



$a =$ ____ $b =$ ____ $c =$ ____

Opens: up or down

Normal, Narrow (skinny), or Wide (fat)

Maximum or Minimum

y-intercept: _____

$x = \frac{-b}{2a} =$ _____ (vertex)

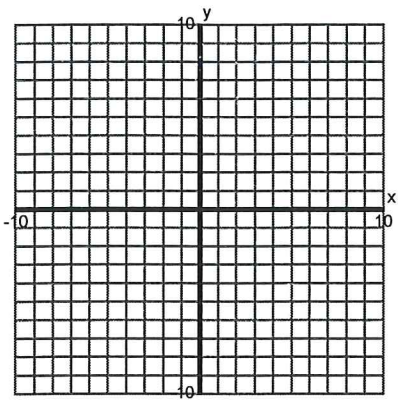
Plug back into equation to find y (vertex):

Vertex: (____, ____)

Axis of symmetry: $x =$ ____

x	y

3. $y = x^2 - 4x + 8$



$a =$ ____ $b =$ ____ $c =$ ____

Opens: up or down

Normal, Narrow (skinny), or Wide (fat)

Maximum or Minimum

y-intercept: _____

$x = \frac{-b}{2a} =$ _____ (vertex)

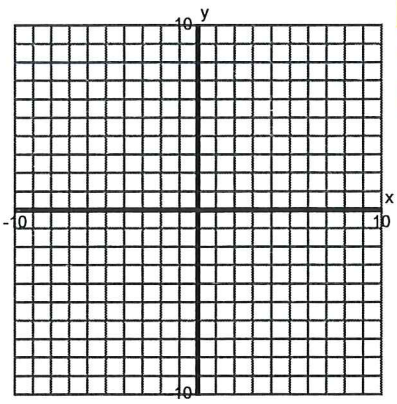
Plug back into equation to find y (vertex):

Vertex: (____, ____)

Axis of symmetry: $x =$ ____

x	y

4. $y = -2x^2 - 1$



$a =$ ____ $b =$ ____ $c =$ ____

Opens: up or down

Normal, Narrow (skinny), or Wide (fat)

Maximum or Minimum

y-intercept: _____

$x = \frac{-b}{2a} =$ _____ (vertex)

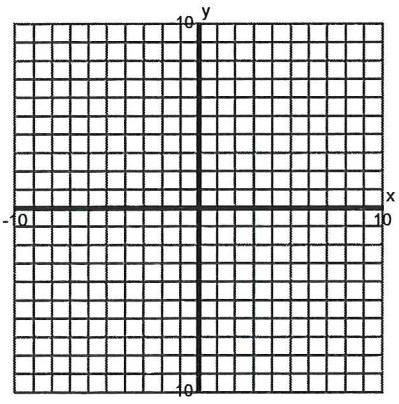
Plug back into equation to find y (vertex):

Vertex: (____, ____)

Axis of symmetry: $x =$ ____

x	y

5. $y = -x^2 + 3$



$a =$ ____ $b =$ ____ $c =$ ____

Opens: up or down

Normal, Narrow (skinny), or Wide (fat)

Maximum or Minimum

y-intercept: _____

$x = \frac{-b}{2a} =$ _____ (vertex)

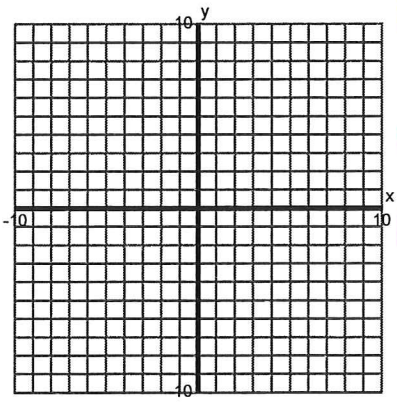
Plug back into equation to find y (vertex):

Vertex: (____, ____)

Axis of symmetry: $x =$ ____

x	y

6. $y = 3x^2 - 12x$



$a =$ ____ $b =$ ____ $c =$ ____

Opens: up or down

Normal, Narrow (skinny), or Wide (fat)

Maximum or Minimum

y-intercept: _____

$x = \frac{-b}{2a} =$ _____ (vertex)

Plug back into equation to find y (vertex):

Vertex: (____, ____)

Axis of symmetry: $x =$ ____

x	y