Name: _____ Date: _____ **Unit 5 Class Work**

# Graphing Quadratic Functions Class Work

**Objective:** *You will be able to graph quadratic functions, and identify important aspects of the graphs, as well as the standard form of the equation.*

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## ★ Graphs of Quadratic Functions:

- The shape of quadratic graphs are called _____.

- You may be asked to identify the following of each graph:

  - x-intercepts:

  - y-intercept:

  - Vertex:

  - Axis of Symmetry:

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## ★ Vertex Form:

*Recall some ideas from what you discovered about transformations of parent function graphs!*

- The vertex is _____.

- The value of *a* will make the parabola _____.

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## ★ Standard Form:

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## ★ Intercept Form (Factored Form):

**Example:**

*In this form, the x-intercepts can be found quite easily!*

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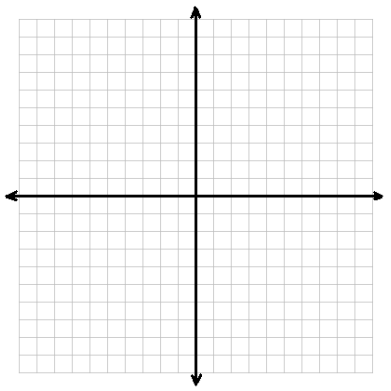
**Practice:** Graph the quadratic function, and provide each piece of requested information.

1. $f(x) = -3(x+4)^2 + 1$

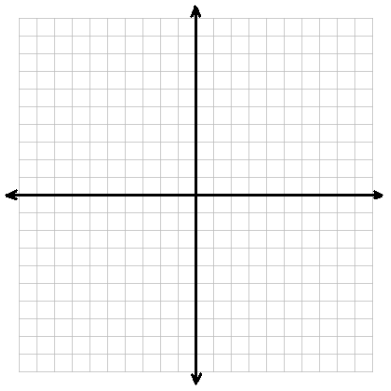
| Vertex | Axis of Symmetry | Two Other Points | How many x-intercepts are there? | At what point is the y-intercept? |
|---|---|---|---|---|
| | | | | |



Rewrite the function in standard form.

2. $f(x) = (2x-4)(x+5)$

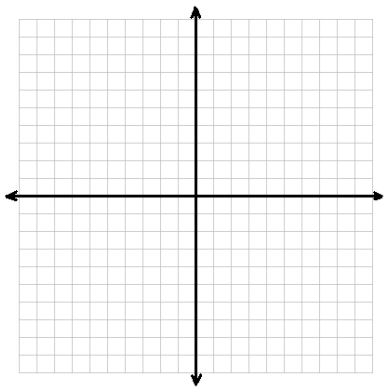
| Where are the x-intercepts? | Axis of Symmetry | Vertex | At what point is the y-intercept? |
|---|---|---|---|
| | | | |



Rewrite the function in standard form.

3. $f(x) = \frac{1}{3}(x+3)^2 - 8$

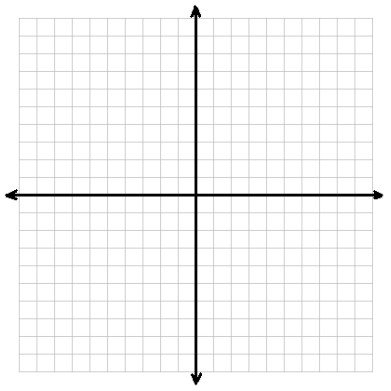
| Vertex | Axis of Symmetry | Two Other Points | How many x-intercepts are there? | At what point is the y-intercept? |
|---|---|---|---|---|
| | | | | |



Rewrite the function in standard form.

4. $f(x) = -(x-3)(3x+9)$

| Where are the x-intercepts? | Axis of Symmetry | Vertex | At what point is the y-intercept? |
|---|---|---|---|
| | | | |



Rewrite the function in standard form.

Rewrite the function in standard form.

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5. **For each function, sketch a graph on graph paper. Then identify each of the following aspects:**

✦ the vertex ✦ the axis of symmetry ✦ the y-intercept

✦ x-intercepts (how many if given vertex form, and the exact points if given intercept form) ✦ standard form of the function

a. $f(x) = (x-8)(4x+4)$

b. $f(x) = 2(x-1)^2 - 3$

c. $f(x) = \frac{1}{4}(x+1)^2 + 7$

d. $f(x) = (3x-24)(x+5)$

e. $f(x) = (x+8)(x+8)$

f. $f(x) = (2x-14)(2x-14)$

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**CL**: State any **Concept** you **Learned**

**OSE**: Provide **One Specific Example**

**R**: How is this concept **Relevant** to any previous lessons?

*OR*

How is the concept **Related** to any other concept you worked with today?