**Graphing f(x) = ax2 + bx + c**

**Essential Question:**  How can you find the vertex of the graph of f(x) = ax2 + bx + c?

Example: f(x) = 3x2 – 2x + 1

Which way will the graph open? Will it have a maximum or a minimum?

What is the y-intercept?

What is the x-coordinate of the vertex?

What is the axis of symmetry?



Example: f(x) = 3x2 – 2x + 1

Does the function have a minimum or maximum? What is the value of the minimum or maximum?

Practice:

For problems 1-4, find the axis of symmetry and y-intercept of the quadratic function.

1. f(x) = x2 – 10x + 2 2. y = –4x2 +16x
2. y = –2x2 – 8x + 5 4. f(x) = –3x2 + 6x + 1

For problems 5-8, say whether the quadratic function has a maximum or minimum value and find the value.

1. y = –1/2x2 – 5x + 2 6. y = 8x2 + 16x – 2
2. y = – x2 – 4x – 7 8. y = –7x2 + 7x + 5

For problems 9-10, find the following four things, then graph the equation:

1. The y-intercept
2. The axis of symmetry
3. The maximum or minimum value
4. The coordinates of the vertex
5. f(x) = 3x2 + 6x + 2 10. y = 2x2 – 8x – 1
6. a.
7. b.

1. c.
2. d.



