**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Properties of a Parabola**

**Identify the vertex, the axis of symmetry, y-intercept and the minimum and maximum value and tell if it is increasing or decreasing for each parabola.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Vertex** | **Axis of Symmetry** | **Y-intercept** | **Max or Min****Inc. or Dec.** |
| 1. $y=x^{2}-4x+1$
 |  |  |  |  |
| 1. $y=-x^{2}+2x+3$
 |  |  |  |  |
| 1. $y=2x^{2}+3x-5$
 |  |  |  |  |
| 1. $ y=-3x^{2}+4x$
 |  |  |  |  |

Find vertex and axis of symmetry.



1. .

Axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Maximum or minimum? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Maximum or minimum? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What shape is formed when you graph a quadratic?
2. What does the sign of the “a” value tell you? Explain.
3. Tell which graph would be narrower:
	1. y = 2x2 + 3x – 4 or b. y = 4x2 – 2x + 7
4. Tell which graph would be higher:
	1. y = 2x2 – 2x + 2 or b. y = 3x2 - 2x + 9
5. Which quadratic would be increasing?
	1. y = 2x2 + 3x – 4 or b. y = -4x2 – 2x + 7
6. Which quadratic would have a minimum?
	1. y = 2x2 + 3x – 4 or b. y = -4x2 – 2x + 7
7. How do you find the y-intercept of a quadratic equation?
8. What is the formula to find the vertex (or axis of symmetry) of a quadratic?
9. After finding the x-value for the vertex, how would you find the y-value?