Activity 2.1: Parts of a Graph Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Math 3

|  |  |  |  |
| --- | --- | --- | --- |
| X-Intercept: | Y-Intercept: | Maximum/Minimum: | Vertex: |
| When the value of “y” is zero; where the graph crosses the x-axis. | When the value of “x” is zero; where the graph crosses the y-axis. | The y-value where a graph comes to a high point or low point | Highest or lowest point of a graph (x, y) |
| http://www.enchantedlearning.com/math/gifs/xintercept.GIF | http://www.enchantedlearning.com/math/gifs/yintercept.GIF | http://www.mathjunkies.com/mathjunkies/Data/Quadratic%20Graph%20Maximum/quad%20graph%20max_branded.jpg | http://aventalearning.com/courses/ALG2x-HS-A09/a/unit01/resources/images/A2_1.6_Content_10c.bmpVertex (x, y) |

**Directions:** In the following activity, fill in the table, plot the points on the graph, and find the maximum or minimum, vertex, x-intercepts, and y-intercepts. Then state the shape and answer the question at the end of each category.

**Example:** $f\left(x\right)=(x+1)^{2}-9$ Shape: \_\_\_\_\_\_\_

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **x** | -6 | -5 | -4 | -3 | -2 | -1 | 0 |
| **y** |  |  |  |  |  |  |  |

x-intercept:

y-intercept:

Max or Min:

Vertex:

Domain:

Range:

Interval Increasing:

Interval Decreasing:

* **What similarities do you see between the vertex and the equation?**

* **What part of the equation do you think gives the graph its shape?**

**Absolute Value #1:** $f\left(x\right)=\left|x-4\right|-2$ Shape: \_\_\_\_\_\_\_

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **x** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **y** |  |  |  |  |  |  |  |

x-intercept:

y-intercept:

Max or Min:

Vertex:

Domain:

Range:

Interval Increasing:

Interval Decreasing:

* **What similarities do you see between the vertex and the equation?**

* **What part of the equation do you think gives the graph its shape?**

**Quadratic #1:** $f\left(x\right)=-(x-2)^{2}+1$ Shape: \_\_\_\_\_\_\_

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **x** | -1 | 0 | 1 | 2 | 3 | 4 | 5 |
| **y** |  |  |  |  |  |  |  |

x-intercept:

y-intercept:

Max or Min:

Vertex:

Domain:

Range:

Interval Increasing:

Interval Decreasing:

* **What similarities do you see between the vertex and the equation?**
* **What part of the equation do you think gives the graph its shape?**