**Name: Period: Job 16 Absolute Value and Transformations**

Students can identify the effect of replacing *f(x)* by *f(x) + k*, *kf(x)*, *f(kx)*, and *f(x + k)* for specific values of *k* (both positive and negative). Students can find the value of *k* given the graphs. Students will experiment with cases and illustrate an explanation of the effects on the graph using technology (IF-BF.B.3)

1. To begin, use your calculator to complete the table and graph



Remember, to graph absolute value on your calculator first press **Y =**, then press **2ND,** then press **0,** then press **ENTER**

Also, remember that for absolute ***v***alue the graph must make a “***v***”.

|  |  |
| --- | --- |
| **x** | **y** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  | Vertex:Domain:Range:  |
|  |  |

***Complete the following and compare the graphs to the basic absolute value graph from number 1 above.***

4. Using your own words and complete

 sentences, describe what happened to the

 basic absolute value graph when the

 ***coefficient*** was a ***whole*** ***number***.





1. Graph
2. Using your own words and complete sentences, describe what happened to the basic absolute value graph when the ***coefficient*** was a ***fraction***.

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\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Vertex:

Domain:

Range:



1. Using your own words and a complete sentence, describe how ***adding*** a number ***outside*** the absolute value changes the graph. \_\_\_\_\_\_
2. Using what you just came up with from question 9, in your own words and complete sentences, describe how ***subtracting*** a number ***outside*** the absolute value might change the graph. *(If you need help, use your calculator to graph and compare the differences)*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_





Vertex:

Domain:

Range:

1. Using your own words and a complete sentence, describe how ***adding*** a number ***inside*** the absolute value changes the graph.
2. Using what you just came up with from question 13, in your own words and complete sentences describe how ***subtracting*** a number ***inside*** the absolute value might change the graph. *(If you need help, use your calculator to graph and compare the differences)*

16. Using your own words in a sentence or two, describe how a ***negative*** changes the basic absolute value graph.



Vertex:

Domain:

Range:

Graph the following:

18.



Vertex:

Minimum or Maximum?

Increasing Interval:

Decreasing Interval:

Vertex:

Minimum or Maximum?

Increasing Interval:

Decreasing Interval:



Vertex:

Minimum or Maximum?

Increasing Interval:

Decreasing Interval:

Vertex:

Minimum or Maximum?

Increasing Interval:

Decreasing Interval:

 Determine the equations for the following graphs.

1.
2.



Vertex:

Minimum or Maximum?

Increasing Interval:

Decreasing Interval:

Vertex:

Minimum or Maximum?

Increasing Interval:

Decreasing Interval: