Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Algebra I - \_\_\_\_\_\_ **Linear Function Transformations Exploration**

For this activity you will need a pencil and three other color map pencils.

Complete the table and graph each function.

 1.  2.  3.  4. 

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −2 |  |
| −1 |  |
| 0 |  |
| 1 |  |
| 2 |  |

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

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −3 |  |
| −2 |  |
| 0 |  |
| 1 |  |
| 3 |  |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −8 |  |
| –4 |  |
| 0 |  |
| 4 |  |
| 8 |  |

Compare #2, #3, and #4 to the parent function. How did the graphs change?

 Did any part of the graph remain the same as the parent function?

 1.  2.  3.  4. 

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −2 |  |
| −1 |  |
| 0 |  |
| 1 |  |
| 2 |  |

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

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −8 |  |
| –4 |  |
| 0 |  |
| 4 |  |
| 8 |  |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −8 |  |
| –4 |  |
| 0 |  |
| 4 |  |
| 8 |  |

Compare #2, #3, and #4 to the parent function. How did the graphs change?

 Did any part of the graph remain the same as the parent function?

 1.  2.  3.  4. 

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −10 |  |
| –5 |  |
| 0 |  |
| 5 |  |
| 10 |  |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −8 |  |
| –4 |  |
| 0 |  |
| 4 |  |
| 8 |  |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −10 |  |
| –6 |  |
| 0 |  |
| 4 |  |
| 8 |  |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −8 |  |
| –4 |  |
| 0 |  |
| 4 |  |
| 8 |  |

Compare #2, #3, and #4 to the parent function. How did the graphs change?

 Did any part of the graph remain the same as the parent function?

 1.  2.  3.  4. 

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −8 |  |
| –4 |  |
| 0 |  |
| 4 |  |
| 8 |  |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −10 |  |
| –6 |  |
| 0 |  |
| 4 |  |
| 8 |  |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −9 |  |
| –6 |  |
| 0 |  |
| 3 |  |
| 9 |  |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −10 |  |
| –5 |  |
| 0 |  |
| 5 |  |
| 10 |  |

Compare #2, #3, and #4 to the parent function. How did the graphs change?

 Did any part of the graph remain the same as the parent function?

**\*\*Summarize the effects of changing on the graph of.**

 **Exploring Vertical Shifts**

 1.  2.  3.  4. 

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −8 |  |
| –4 |  |
| 0 |  |
| 4 |  |
| 8 |  |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −8 |  |
| –4 |  |
| 0 |  |
| 4 |  |
| 7 |  |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −8 |  |
| –4 |  |
| 0 |  |
| 4 |  |
| 8 |  |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −8 |  |
| –4 |  |
| 0 |  |
| 4 |  |
| 8 |  |

Compare #2, #3, and #4 to the parent function. How did the graphs change?

 Did any part of the graph remain the same as the parent function?

 1.  2.  3.  4. 

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −7 |  |
| –4 |  |
| 0 |  |
| 4 |  |
| 8 |  |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −8 |  |
| –4 |  |
| 0 |  |
| 4 |  |
| 8 |  |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −8 |  |
| –4 |  |
| 0 |  |
| 4 |  |
| 8 |  |

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| −4 |  |
| –2 |  |
| 0 |  |
| 5 |  |
| 10 |  |

Compare #2, #3, and #4 to the parent function. How did the graphs change?

 Did any part of the graph remain the same as the parent function?

**\*\*Summarize the effects of changing  on the graph of.**