**Reflection Exploration**

1. **** ΔABC and ΔXYZ are reflections of each other. While holding the paper towards the light, fold the paper so that the triangles coincide (line up on top of each other). Crease the fold. Then open your paper back up and trace over this fold line using a straightedge to keep it neat.

2) Using a straightedge, draw , , and . Look at each segment in relationship to the reflection line. What appears to be true about the reflection line? Discuss lengths of segments and angles created in relationship to the reflection line.

Use a Mira to reflect each figure across the dashed line. Label the image points with proper notation.

|  |  |
| --- | --- |
|  |  |

3) Points A and B are on the line of reflection. How are A’ and B’ related to the reflection line?

1. Using a straightedge, draw CC ’. How is the reflection line related to CC ’?

**Checkpoint: Reflections:**

* A reflection is a transformation in which the image is a mirror image of the preimage.
* A point on the line of reflection maps to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .
* Other points map to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ side of the reflection line so that the  
   reflection line is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the segment joining a preimage and image point.
* Preimage and image points are equidistant from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ line.
* Notation for reflections is R line of reflection  . Example: R x-axis means reflection across the x-axis.

Graph the points to form a figure. Reflect each figure over the x-axis. Draw the image in a different color. Then write the coordinates of the image points. What pattern do you notice?

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

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

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

|  |  |
| --- | --- |
| *x* | *y* |
|  |  |
|  |  |
|  |  |

|  |  |
| --- | --- |
| *x* | *y* |
|  |  |
|  |  |
|  |  |

|  |  |
| --- | --- |
| *x* | *y* |
|  |  |
|  |  |
|  |  |

Write the algebraic rule for a reflection over the x-axis:

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

Graph the points to form a figure. Reflect each figure over the y-axis. Draw the image in a different color. Then write the coordinates of the image points. What pattern do you notice?

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

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

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

|  |  |
| --- | --- |
| *x* | *y* |
|  |  |
|  |  |
|  |  |

|  |  |
| --- | --- |
| *x* | *y* |
|  |  |
|  |  |
|  |  |

|  |  |
| --- | --- |
| *x* | *y* |
|  |  |
|  |  |
|  |  |

Write the algebraic rule for a reflection over the y-axis:

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

Graph the points to form a figure. Reflect each figure over the line y = x (drawn for you on the first graph). Draw the image in a different color. Then write the coordinates of the image points. What pattern do you notice?

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

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

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

|  |  |
| --- | --- |
| *x* | *y* |
|  |  |
|  |  |
|  |  |

|  |  |
| --- | --- |
| *x* | *y* |
|  |  |
|  |  |
|  |  |

|  |  |
| --- | --- |
| *x* | *y* |
|  |  |
|  |  |
|  |  |

Write the algebraic rule for a reflection over the line y = x:

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

Graph the points to form a figure. Reflect each figure over the line y = -x (drawn for you on the first graph). Draw the image in a different color. Then write the coordinates of the image points. What pattern do you notice?

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

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

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

|  |  |
| --- | --- |
| *x* | *y* |
|  |  |
|  |  |
|  |  |

|  |  |
| --- | --- |
| *x* | *y* |
|  |  |
|  |  |
|  |  |

|  |  |
| --- | --- |
| *x* | *y* |
|  |  |
|  |  |
|  |  |

Write the algebraic rule for a reflection over the line y = -x:

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