Remember, in Math the word reflect means to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a figure.

On the coordinate grid, the y-axis goes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The x-axis goes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Example 1:** Reflecting when the line of symmetry is the x-axis.

Draw the reflection of quadrilateral ABCD over the x-axis. Name the coordinates of each vertex.

What’s the line of symmetry? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

A: \_\_\_\_\_\_\_\_\_ A’: \_\_\_\_\_\_\_\_\_

B: \_\_\_\_\_\_\_\_\_ B’: \_\_\_\_\_\_\_\_\_

C: \_\_\_\_\_\_\_\_\_ C’: \_\_\_\_\_\_\_\_\_

D: \_\_\_\_\_\_\_\_\_ D’: \_\_\_\_\_\_\_\_\_

**-1**

**-2**

**-3**

**-4**

**-5**

**-6**

**-7**

**-8**

**-9**

**-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9**

*y-axis*

*x-axis*

**C**

**A**

**B**

**D**

**Step 5:** Connect the dots with straight lines.

**How To Perform**

**a Reflection…**

**Step 1:** Identify and **mark** the line of symmetry.

**Step 2:** Pick a point on the original figure then count the number of units from the point to the line of symmetry.

**Step 3:** Count the same number of units on the other side, from the line of symmetry to the new point.

**Step 4:** Plot the point in prime notation

**Step 6:** Check your work!

**-1**

**-2**

**-3**

**-4**

**-5**

**-6**

**-7**

**-8**

**-9**

**-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9**

*y-axis*

*x-axis*

**V**

**T**

**U**

**You Try 1!**

Draw the reflection of triangle TUV over the x-axis. Name the coordinates of each vertex.

T: \_\_\_\_\_\_\_\_\_ T’: \_\_\_\_\_\_\_\_\_

U: \_\_\_\_\_\_\_\_\_ U’: \_\_\_\_\_\_\_\_\_

V: \_\_\_\_\_\_\_\_\_ V’: \_\_\_\_\_\_\_\_\_

**Example 2:** Reflecting when the line of symmetry is the y-axis.

**-1**

**-2**

**-3**

**-4**

**-5**

**-6**

**-7**

**-8**

**-9**

**-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9**

*y-axis*

*x-axis*

**X**

**Y**

**Z**

Draw the reflection of triangle XYZ over the y-axis. Name the coordinates of each vertex.

What’s the line of symmetry? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

X: \_\_\_\_\_\_\_\_\_ X’: \_\_\_\_\_\_\_\_\_

Y: \_\_\_\_\_\_\_\_\_ Y’: \_\_\_\_\_\_\_\_\_

Z: \_\_\_\_\_\_\_\_\_ Z’: \_\_\_\_\_\_\_\_\_

**-1**

**-2**

**-3**

**-4**

**-5**

**-6**

**-7**

**-8**

**-9**

**-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9**

*y-axis*

*x-axis*

**D**

**A**

**B**

**C**

**You Try 2!**

Draw the reflection of quadrilateral ABCD over the y-axis. Name the coordinates of each vertex.

A: \_\_\_\_\_\_\_\_\_ A’: \_\_\_\_\_\_\_\_\_

B: \_\_\_\_\_\_\_\_\_ B’: \_\_\_\_\_\_\_\_\_

C: \_\_\_\_\_\_\_\_\_ C’: \_\_\_\_\_\_\_\_\_

D: \_\_\_\_\_\_\_\_\_ D’: \_\_\_\_\_\_\_\_\_

**Example 3:** Reflecting when the figure overlaps the line of symmetry

**-1**

**-2**

**-3**

**-4**

**-5**

**-6**

**-7**

**-8**

**-9**

**-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9**

*y-axis*

*x-axis*

**V**

**T**

**U**

Draw the reflection of triangle TUV over the y-axis. Name the coordinates of each vertex.

What’s the line of symmetry? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

T: \_\_\_\_\_\_\_\_\_ T’: \_\_\_\_\_\_\_\_\_

U: \_\_\_\_\_\_\_\_\_ U’: \_\_\_\_\_\_\_\_\_

V: \_\_\_\_\_\_\_\_\_ V’: \_\_\_\_\_\_\_\_\_

**You Try 3!**

Draw the reflection of triangle TUV over the x-axis. Name the coordinates of each vertex.

T: \_\_\_\_\_\_\_\_\_ T’: \_\_\_\_\_\_\_\_\_

U: \_\_\_\_\_\_\_\_\_ U’: \_\_\_\_\_\_\_\_\_

V: \_\_\_\_\_\_\_\_\_ V’: \_\_\_\_\_\_\_\_\_

**-1**

**-2**

**-3**

**-4**

**-5**

**-6**

**-7**

**-8**

**-9**

**-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9**

*y-axis*

*x-axis*

**V**

**T**

**U**

What are some common **BLUNDERS** on these types of problems?

**Think about it…**

AH-HA!

**If you have a figure in quadrant 1…**

…and you reflect over the x-axis the image will be in quadrant \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

…and you reflect over the y-axis the image will be in quadrant \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**If you have a figure in quadrant 2…**

…and you reflect over the x-axis the image will be in quadrant \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

…and you reflect over the y-axis the image will be in quadrant \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**If you have a figure in quadrant 3…**

…and you reflect over the x-axis the image will be in quadrant \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

…and you reflect over the y-axis the image will be in quadrant \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**If you have a figure in quadrant 4…**

…and you reflect over the x-axis the image will be in quadrant \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

…and you reflect over the y-axis the image will be in quadrant \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**2007 8th Grade State Exam Book 3 Question:**

***Part B***

On the lines below, explain how you determined the location of point M’.

**Independent Practice**

**2.**

**1.**

**3.**

**-1**

**-2**

**-3**

**-4**

**-5**

**-6**

**-7**

**-8**

**-9**

**-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9**

*y-axis*

*x-axis*

Draw the reflection of triangle XYZ over the x-axis. Name the coordinates of each vertex.

X: \_\_\_\_\_\_\_\_\_ X’: \_\_\_\_\_\_\_\_\_

Y: \_\_\_\_\_\_\_\_\_ Y’: \_\_\_\_\_\_\_\_\_

Z: \_\_\_\_\_\_\_\_\_ Z’: \_\_\_\_\_\_\_\_\_

**X**

**Y**

**Z**

**-1**

**-2**

**-3**

**-4**

**-5**

**-6**

**-7**

**-8**

**-9**

**-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9**

*y-axis*

*x-axis*

Draw the reflection of quadrilateral ABCD over the y-axis. Name the coordinates of each vertex.

A: \_\_\_\_\_\_\_\_\_ A’: \_\_\_\_\_\_\_\_\_

B: \_\_\_\_\_\_\_\_\_ B’: \_\_\_\_\_\_\_\_\_

C: \_\_\_\_\_\_\_\_\_ C’: \_\_\_\_\_\_\_\_\_

D: \_\_\_\_\_\_\_\_\_ D’: \_\_\_\_\_\_\_\_\_

**D**

**A**

**B**

**C**

**-1**

**-2**

**-3**

**-4**

**-5**

**-6**

**-7**

**-8**

**-9**

**-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9**

*y-axis*

*x-axis*

Draw the reflection of triangle TUV over the x-axis. Name the coordinates of each vertex.

T: \_\_\_\_\_\_\_\_\_ T’: \_\_\_\_\_\_\_\_\_

U: \_\_\_\_\_\_\_\_\_ U’: \_\_\_\_\_\_\_\_\_

V: \_\_\_\_\_\_\_\_\_ V’: \_\_\_\_\_\_\_\_\_

**V**

**T**

**U**

5.

4.

**-1**

**-2**

**-3**

**-4**

**-5**

**-6**

**-7**

**-8**

**-9**

**-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9**

*y-axis*

*x-axis*

Draw the reflection of quadrilateral ABCD over the x-axis. Name the coordinates of each vertex.

A: \_\_\_\_\_\_\_\_\_ A’: \_\_\_\_\_\_\_\_\_

B: \_\_\_\_\_\_\_\_\_ B’: \_\_\_\_\_\_\_\_\_

C: \_\_\_\_\_\_\_\_\_ C’: \_\_\_\_\_\_\_\_\_

D: \_\_\_\_\_\_\_\_\_ D’: \_\_\_\_\_\_\_\_\_

**C**

**A**

**B**

**D**

**-1**

**-2**

**-3**

**-4**

**-5**

**-6**

**-7**

**-8**

**-9**

**-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9**

*y-axis*

*x-axis*

Draw the reflection of triangle TUV over the y-axis. Name the coordinates of each vertex.

T: \_\_\_\_\_\_\_\_\_ T’: \_\_\_\_\_\_\_\_\_

U: \_\_\_\_\_\_\_\_\_ U’: \_\_\_\_\_\_\_\_\_

V: \_\_\_\_\_\_\_\_\_ V’: \_\_\_\_\_\_\_\_\_

**V**

**T**

**U**

**6.**

**-1**

**-2**

**-3**

**-4**

**-5**

**-6**

**-7**

**-8**

**-9**

**-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9**

*y-axis*

*x-axis*

Draw the reflection of triangle XYZ over the y-axis. Name the coordinates of each vertex.

X: \_\_\_\_\_\_\_\_\_ X’: \_\_\_\_\_\_\_\_\_

Y: \_\_\_\_\_\_\_\_\_ Y’: \_\_\_\_\_\_\_\_\_

Z: \_\_\_\_\_\_\_\_\_ Z’: \_\_\_\_\_\_\_\_\_

**X**

**Y**

**Z**

**Homework: WB pg. 112 all.**

**Exit Ticket**

Draw the reflection of quadrilateral ABCD over the x-axis. Name the coordinates of each vertex.

A: \_\_\_\_\_\_\_\_\_ A’: \_\_\_\_\_\_\_\_\_

B: \_\_\_\_\_\_\_\_\_ B’: \_\_\_\_\_\_\_\_\_

C: \_\_\_\_\_\_\_\_\_ C’: \_\_\_\_\_\_\_\_\_

D: \_\_\_\_\_\_\_\_\_ D’: \_\_\_\_\_\_\_\_\_

**-1**

**-2**

**-3**

**-4**

**-5**

**-6**

**-7**

**-8**

**-9**

**-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9**

*y-axis*

*x-axis*

**X**

**Y**

**Z**

**-1**

**-2**

**-3**

**-4**

**-5**

**-6**

**-7**

**-8**

**-9**

**-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9**

*y-axis*

*x-axis*

**D**

**A**

**B**

**C**

Draw the reflection of triangle XYZ over the y-axis. Name the coordinates of each vertex.

X: \_\_\_\_\_\_\_\_\_ X’: \_\_\_\_\_\_\_\_\_

Y: \_\_\_\_\_\_\_\_\_ Y’: \_\_\_\_\_\_\_\_\_

Z: \_\_\_\_\_\_\_\_\_ Z’: \_\_\_\_\_\_\_\_\_