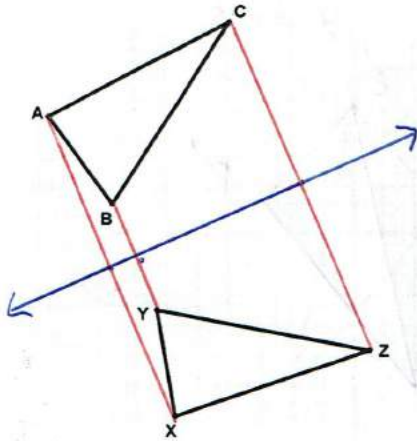


Activity 3: Reflection Exploration

- 1) $\triangle ABC$ and $\triangle XYZ$ 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.

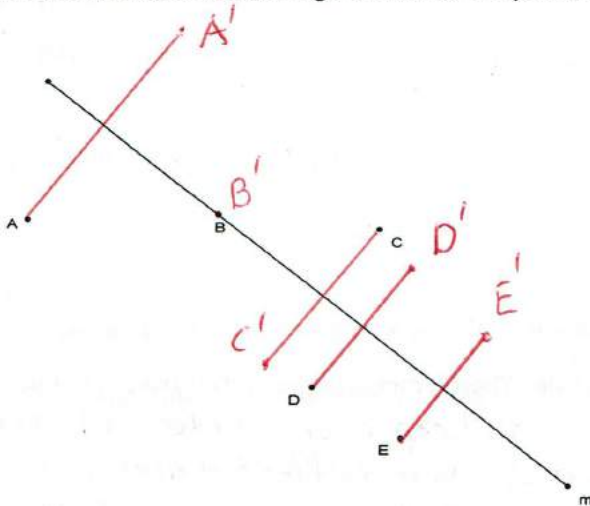


- 2) Using a straightedge, draw \overline{AX} , \overline{BY} , and \overline{CZ} . Look at each segment in relationship to the reflection line. What appears to be true about the reflection line?

Reflection line appears to be perpendicular to segments and to pass through their midpoints.

Activity 5: Mira Exploration:

Use the Mira to find the image of each of the points after a reflection in m and label them (A' , B' , etc.).



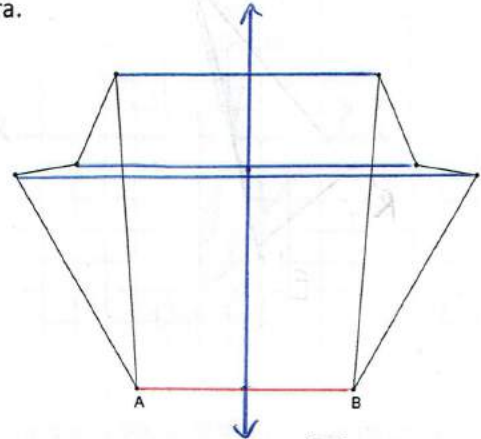
Checkpoint: Reflections:

- A point on the line of reflection maps to itself.
- Other points map to the opposite side of the reflection line so that the reflection line is the perpendicular bisector of the segment joining the preimage and the image.

Activity 4: Mira Introduction Activity

The purpose of this activity is to understand how to use the Mira. The following figures are reflections of one another.

- 1) Place the Mira between them so that the beveled edge is towards you, and try to get them to line up on top of each other. When you have correctly done that, point A should coincide with point B. Draw in the line of reflection at the bottom, beveled edge of the Mira.



- 2) Remove the Mira and draw in \overline{AB} . Does this diagram confirm the hypothesis you made in Activity 3, #2?

yes

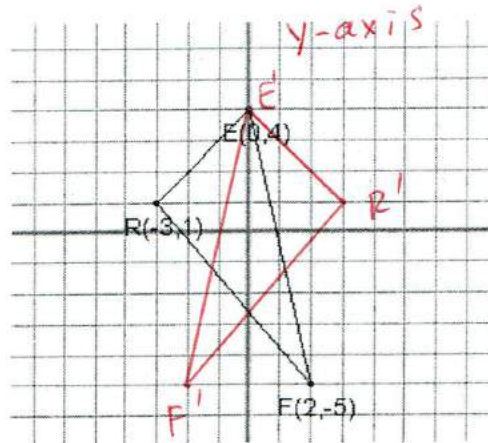
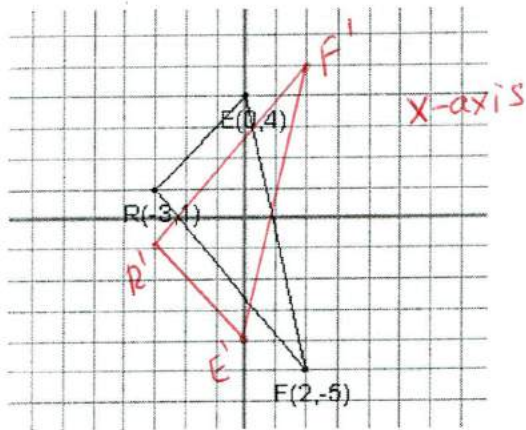
Activity 6: Reflections in the coordinate plane. Given: $\triangle REF$: $R(-3, 1)$, $E(0, 4)$, $F(2, -5)$

1) On the first grid, draw the reflection of $\triangle REF$ in the x-axis.

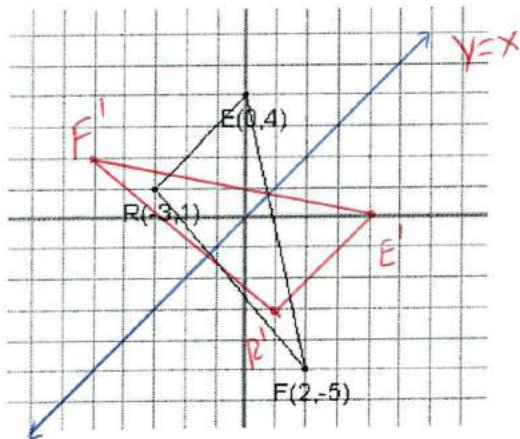
Record the new coordinates: $R'(-3, -1)$, $E'(0, -4)$, $F'(2, 5)$

2) On the second grid, draw the reflection of $\triangle REF$ in the y-axis.

Record the new coordinates: $R'(3, 1)$, $E'(0, 4)$, $F'(-2, -5)$



3) Draw in the line $y = x$ on the third coordinate grid. Trace $\triangle REF$ and the line $y = x$ on patty paper. Then flip the patty paper over and line it up again to see where the triangle's image would be if you reflected it in the line $y = x$. Record the new coordinates: $R'(1, -3)$, $E'(4, 0)$, $F'(-5, 2)$



Checkpoint: Look at the patterns & complete the algebraic rule. Then summarize the pattern/rule in words.

- | | | |
|-------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------|
| 1. Reflection in the x-axis maps $(x, y) \rightarrow$ | $(\underline{x}, \underline{-y})$ | } Keep coordinate of axis you reflect in.
Take opposite of the other coordinate. |
| 2. Reflection in the y-axis maps $(x, y) \rightarrow$ | $(\underline{-x}, \underline{y})$ | |
| 3. Reflection in the line $y = x$ maps $(x, y) \rightarrow$ | $(\underline{y}, \underline{x})$ | switch order |