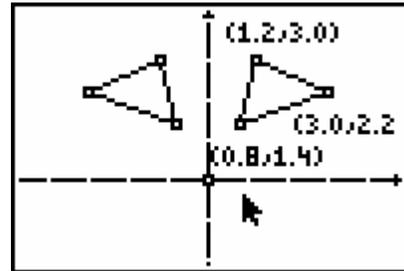


CABRI™ JR. ACTIVITY 24: REFLECTING A TRIANGLE IN THE COORDINATE PLANE

ACTIVITY OVERVIEW:

In this activity we will

- Draw a triangle
- Find the coordinates of the triangle
- Reflect the triangle across the y-axis
- Find the coordinates of the reflected triangle
- Explore the relationship between the original coordinates and the coordinates of the reflected triangle



Press **[APPS]**. Move down to the CabriJr APP and press **[ENTER]**. Press **[ENTER]**, or any key, to begin using the application.

Press **[Y=]** for the F1 menu and select **New**. (If asked to **Save changes?** press **[←]** **[ENTER]** to choose “No.”)

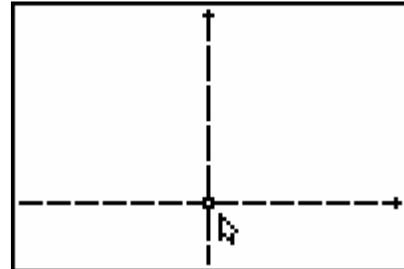


Press **[GRAPH]** for the F5 menu, move to **Hide/Show**, and then move right and down to **Axes**. Press **[ENTER]**.

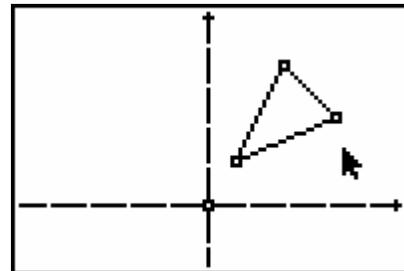


Move until the origin is flashing and press **[ALPHA]** to activate the *hand*. Move the origin until the axes are positioned as shown in the figure.

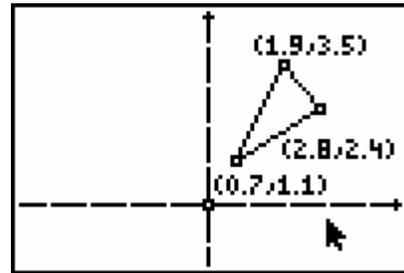
Press **[CLEAR]** to deactivate the *hand*.



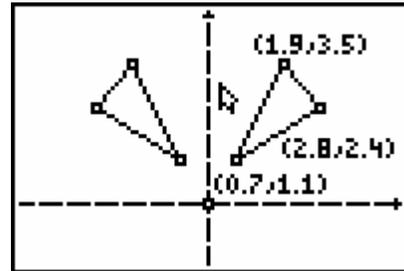
To draw a triangle in the first quadrant, press **[WINDOW]** for the F2 menu. Move to **Triangle** and press **[ENTER]**. Move the pencil to the desired location of one of the vertices and press **[ENTER]**. Move to a second vertex and press **[ENTER]**. Move to the third vertex and press **[ENTER]**. Press **[CLEAR]** to turn off the **Triangle** tool.



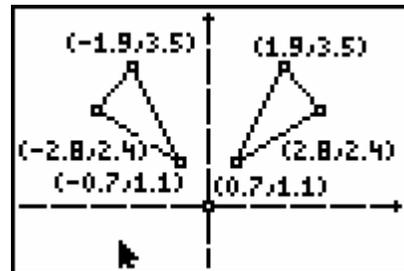
Press **GRAPH** for the F5 menu, move to **Coord. & Eq**, and then press **ENTER**. Move until a vertex is flashing and press **ENTER**. The coordinates of that vertex are displayed and can be moved to a convenient location. Press **CLEAR** to deactivate the *hand*. Move until another vertex of the triangle is flashing and then press **ENTER**. Use the hand to move the coordinates, then press **CLEAR**. Move until the third vertex is flashing and press **ENTER**. Move the coordinates then press **CLEAR** to turn deactivate the *hand*. Press **CLEAR** again to turn off the **Coord. & Eq** tool.



To reflect the triangle across the y-axis, press **TRACE** for the F4 menu, move to **Reflection**, and then press **ENTER**. Move until all sides of the triangle are flashing and press **ENTER**. Move until the y-axis is flashing and press **ENTER**. Press **CLEAR** to turn off the **Reflection** tool.



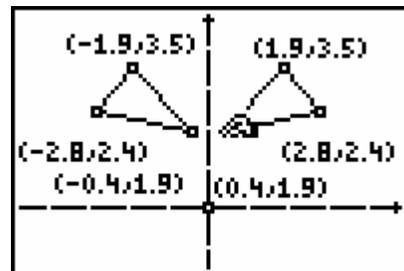
Press **GRAPH** for the F5 menu, move to **Coord. & Eq**, and then press **ENTER**. Find the coordinates of the vertices of the reflected triangle using the same procedure as when finding the coordinates of the vertices of the original triangle.



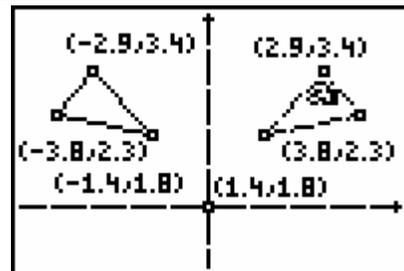
What can you conclude about the coordinates of a figure when it is reflected across the y-axis?

It appears that the coordinates (x, y) becomes $(-x, y)$ in the reflected image.

Test this conjecture by changing the original triangle. Move until a vertex flashing, press **ALPHA**, and then move the point. Observe the changes in the coordinates of the vertices of both triangles.



Press **CLEAR** to deactivate the *hand*. Move until all three sides of the original triangle are flashing and press **ALPHA**. Move the triangle and observe the changes in coordinates.



To exit the APP, press **Y=** for the F1 menu. Move to **Quit**, then press **ENTER**. (Or you can press **2nd** **MODE** for [QUIT].)

