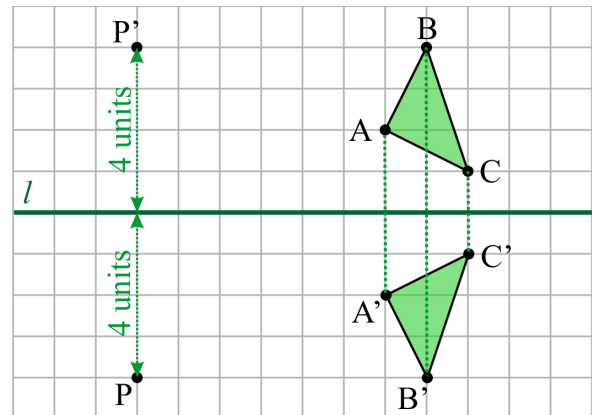


Reflections in the Coordinate Grid

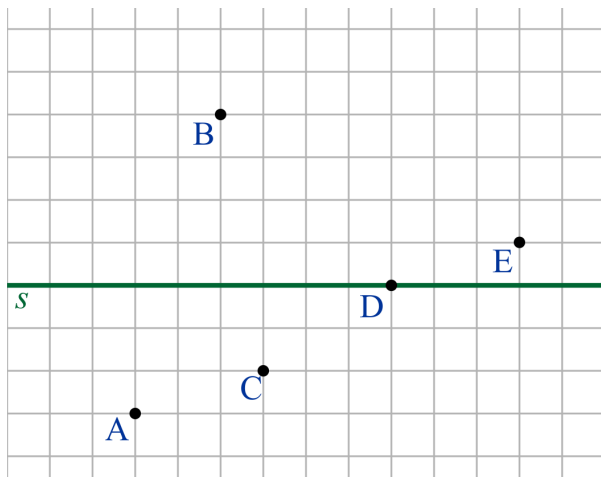
To reflect point P across line l , draw a line segment from point P that is perpendicular* to line l . Continue the line segment. The reflected point P' is at the same distance from line l as P , just on the other side.

In other words, in a reflection, each point and its image are at an equal distance from the line of reflection, measured along a line that is perpendicular to the line of reflection.

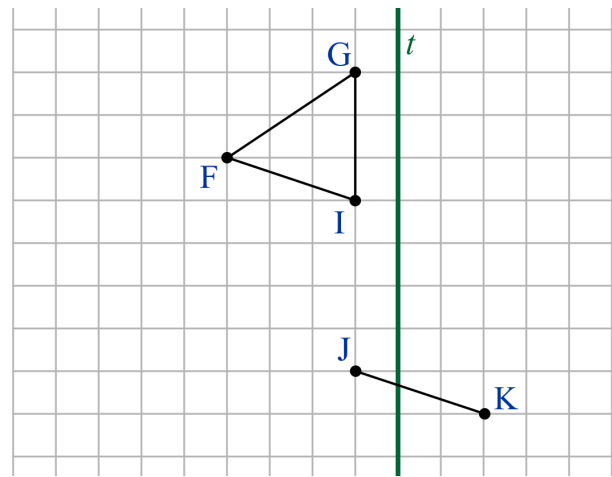
*Two lines or line segments are *perpendicular* if they meet at a right angle.



1. a. Reflect the points across line s .



b. Reflect the figures across line t .

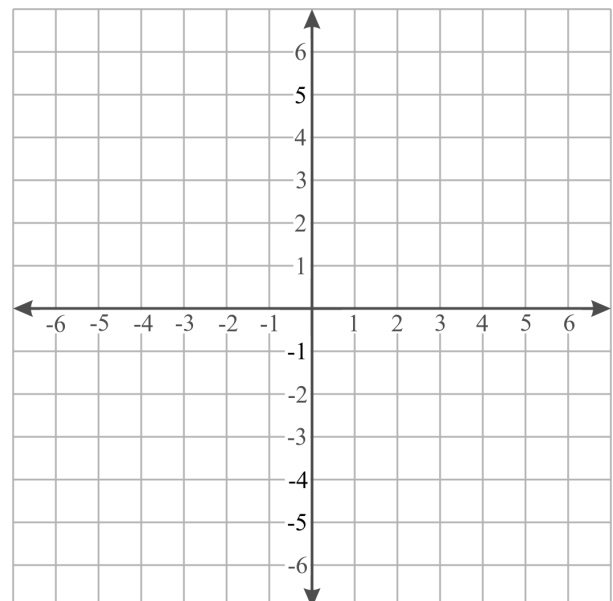


2. a. Draw a vertical line that passes through the point $(2, 0)$.

b. Draw the points $P(1, 2)$, $R(3, 1)$, and $Q(5, 4)$.

c. Reflect each point across the line. Label the reflected points as P' , R' , and Q' .

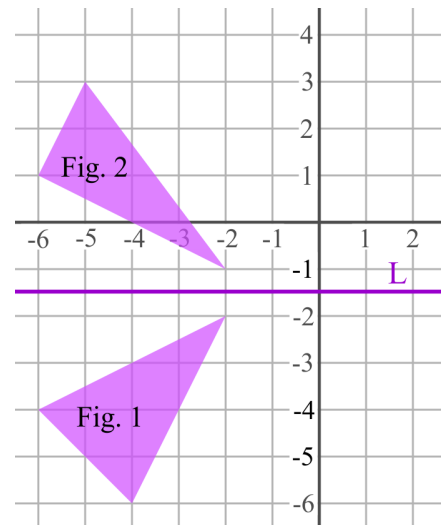
d. Lastly, connect P , Q , and R to form a triangle, and also P' , Q' , and R' .



3. James says that figure 2 is congruent to figure 1 because it is a reflection of figure 1 across the horizontal line L.

a. Explain why James's thinking is wrong.

b. How would you fix the situation?



4. Reflect the points listed below in the x -axis. Write down the coordinates of the reflected points:

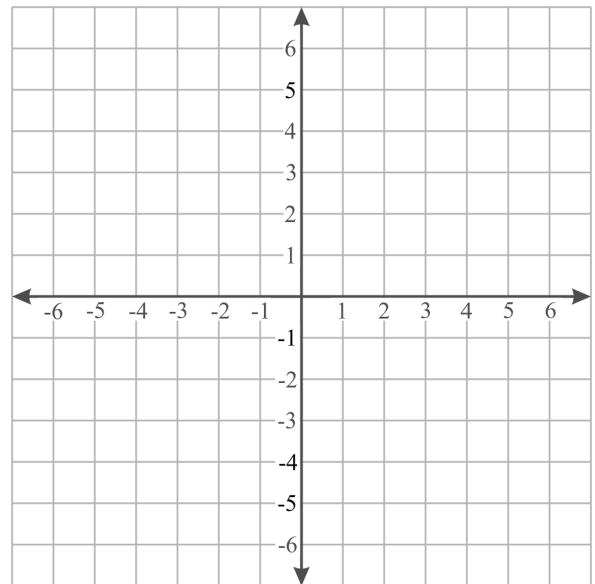
H $(-2, 3) \rightarrow H' (\quad , \quad)$

I $(1, -1) \rightarrow I' (\quad , \quad)$

J $(3, 5) \rightarrow J' (\quad , \quad)$

K $(-5, -4) \rightarrow K' (\quad , \quad)$

Compare the coordinates of each point and its image. What do you notice?



What do you suppose happens to the coordinates of points that are reflected in the y -axis?

5. Pentagon MNOPQ with vertices at $M(-3, 1)$, $N(-1, 4)$, $O(3, 4)$, $P(5, 1)$, and $Q(0, -1)$ is reflected across the x -axis. What are the coordinates of the vertices of the reflected figure?

