

# Worksheet 4.2 – Reflections

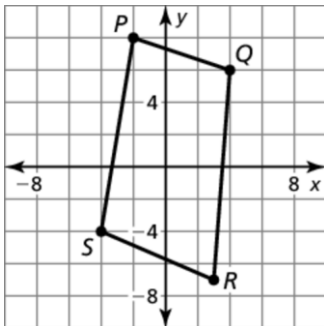
On #1-3 give each new coordinate – along with its label.  
Use the coordinate plane below to help (if needed).

In Exercises 1–3, give the coordinates of the image of each point after a reflection in the given line.

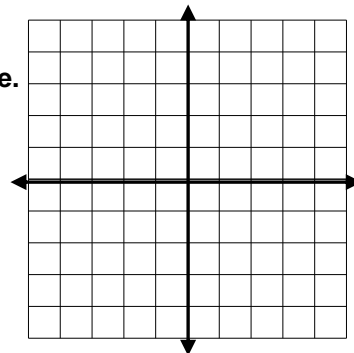
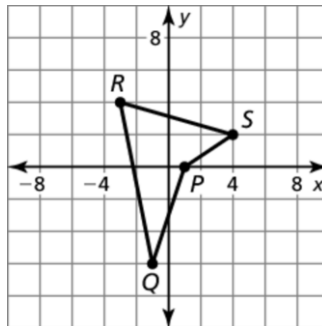
1.  $A(0, 2), B(1, -3)$ ;  $x$ -axis      2.  $C(-2, -4), D(6, 2)$ ;  $y$ -axis      3.  $E(4, -1), F(3, 8)$ ;  $y = -2$

In Exercises 4 and 5, graph the polygon and its image after a reflection in the given line.

4.  $y = -1$



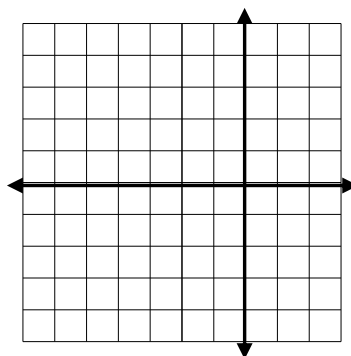
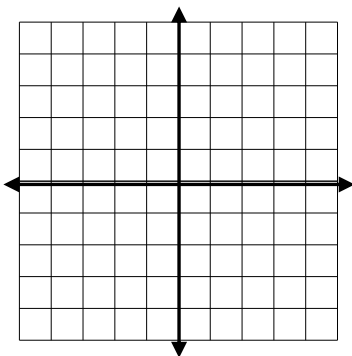
5.  $y = x$



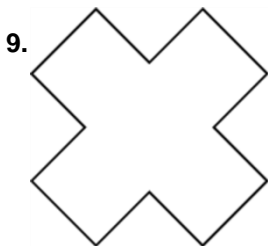
In #6 and 7, graph  $\triangle JKL$  with vertices  $J(2, 3)$ ,  $K(-2, 1)$ , and  $L(-1, 5)$  and its image after the glide reflection.

6. Translation:  $(x, y) \rightarrow (x - 1, y)$   
Reflection: in the  $x$ -axis

7. Translation:  $(x, y) \rightarrow (x + 2, y - 3)$   
Reflection: in the line  $x = -2$



In 8-9, draw all the lines of symmetry.



10. A triangle undergoes a glide reflection. Is it possible for the sides of the triangle to change length during this process? Explain your reasoning.

11. Is it possible to perform two reflections of an object so that the final image is identical to the original image? If so, give an example. If not, explain your reasoning.

12. Your friend claims that it is not possible to have a glide reflection if you have two translations followed by one reflection. Is your friend correct? Explain your reasoning.