Name _____ Date _____

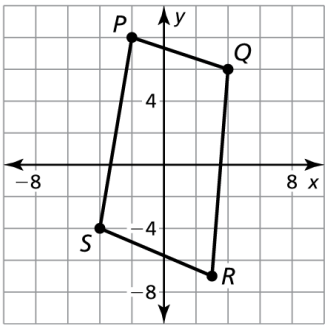
4.2 Practice A

In Exercises 1–3, graph $\triangle ABC$ and its image after a reflection in the given line.

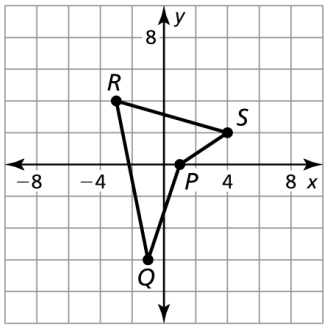
1. $A(0, 2)$, $B(1, -3)$, $C(2, 4)$; x-axis
2. $A(-2, -4)$, $B(6, 2)$, $C(3, -5)$; y-axis
3. $A(4, -1)$, $B(3, 8)$, $C(-1, 1)$; $y = -2$

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

4. $y = -x$



5. $y = x$

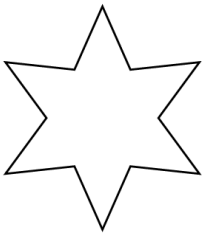


In Exercises 6 and 7, graph $\triangle JKL$ with vertices $J(2, 3)$, $K(-2, 1)$, and $L(-1, 5)$ and its image after the glide reflection.

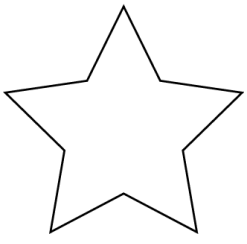
6. **Translation:** $(x, y) \rightarrow (x - 1, y)$
   Reflection: in the x-axis
7. **Translation:** $(x, y) \rightarrow (x + 2, y - 3)$
   Reflection: in the line $x = -2$

In Exercises 8 and 9, determine the number of lines of symmetry for the figure.

8.



9.



10. Find point W on the y-axis so that $VW + XW$ is a minimum given $V(2, 3)$ and $X(-2, -1)$.
11. A line $y = 3x - 5$ is reflected in $x = a$ so that the image is given by $y = 1 - 3x$. What is the value of a?
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.

Name_____ Date _____

4.2 Practice B

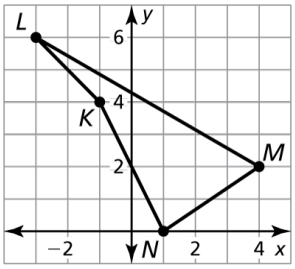
In Exercises 1 and 2, graph $\triangle CDE$ and its image after a reflection in the given line.

1. $C(3, 4)$, $D(2, -1)$, $E(0, -5)$; y-axis

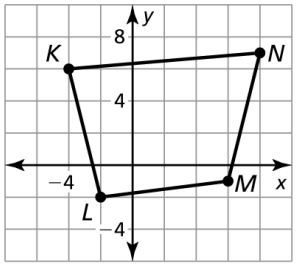
2. $C(1, 6)$, $D(12, 2)$, $E(7, -8)$; $x = 8$

In Exercises 3 and 4, graph the polygon and its image after a reflection in the given line.

3. x-axis



4. $y = -1$

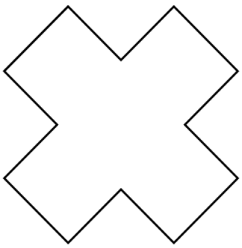


In Exercises 5 and 6, graph $\triangle ABC$ with vertices $A(-1, 4)$, $B(2, -1)$, and $C(4, 3)$ and its image after the glide reflection.

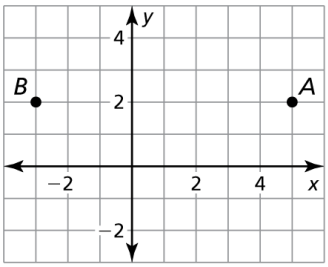
5. **Translation:** $(x, y) \rightarrow (x + 2, y - 1)$
Reflection: in the line $y = x$

6. **Translation:** $(x, y) \rightarrow (x - 3, y + 1)$
Reflection: in the line $y = -x$

7. Determine the number of lines of symmetry for the figure.



8. Find point P on the x-axis so that $AP + BP$ is a minimum.



9. 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.

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