EXAMPLE 2 **Reflecting a Figure in the x-axis**
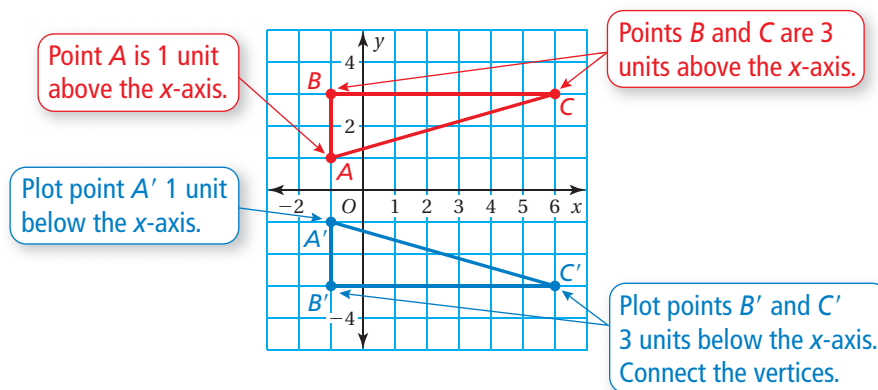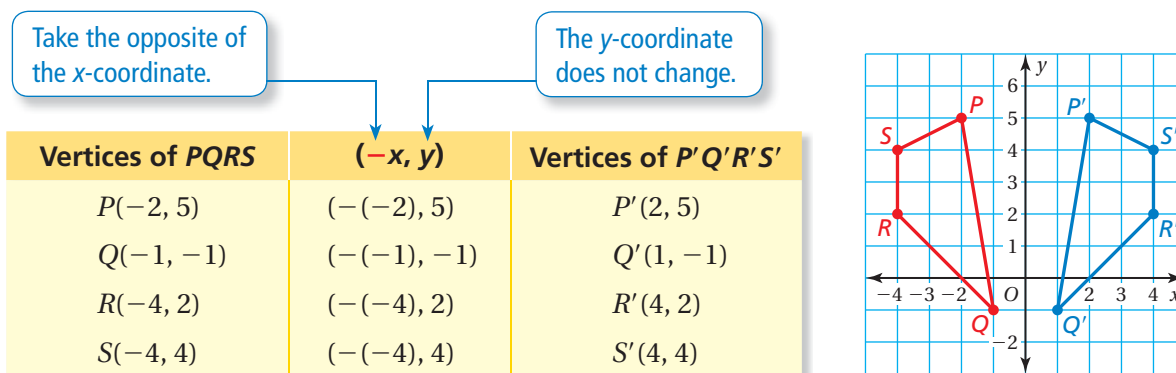
The vertices of a triangle are $A(-1, 1)$, $B(-1, 3)$, and $C(6, 3)$. Draw the figure and its reflection in the x-axis. What are the coordinates of the image?

| Point A is 1 unit above the x-axis. |
| Plot point A′ 1 unit below the x-axis. |

| Points B and C are 3 units above the x-axis. |
| Plot points B′ and C′ 3 units below the x-axis. Connect the vertices. |

∴ The coordinates of the image are $A'(-1, -1)$, $B'(-1, -3)$, and $C'(6, -3)$.

EXAMPLE 3 **Reflecting a Figure in the y-axis**

The vertices of a quadrilateral are $P(-2, 5)$, $Q(-1, -1)$, $R(-4, 2)$, and $S(-4, 4)$. Draw the figure and its reflection in the y-axis.

| Take the opposite of the x-coordinate. | | The y-coordinate does not change. |

Vertices of *PQRS*	$(-x, y)$	Vertices of *P′Q′R′S′*
$P(-2, 5)$	$(-(-2), 5)$	$P'(2, 5)$
$Q(-1, -1)$	$(-(-1), -1)$	$Q'(1, -1)$
$R(-4, 2)$	$(-(-4), 2)$	$R'(4, 2)$
$S(-4, 4)$	$(-(-4), 4)$	$S'(4, 4)$

∴ The figure and its image are shown at the above right.

On Your Own

Now You're Ready
Exercises 10–17

4. The vertices of a rectangle are $A(-4, -3)$, $B(-4, -1)$, $C(-1, -1)$, and $D(-1, -3)$.

   a. Draw the figure and its reflection in the x-axis.

   b. Draw the figure and its reflection in the y-axis.

   c. Are the images in parts (a) and (b) congruent? Explain.

Vocabulary and Concept Check

1. **WHICH ONE DOESN'T BELONG?** Which transformation does *not* belong with the other three? Explain your reasoning.
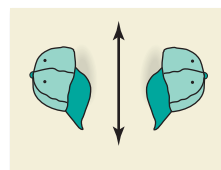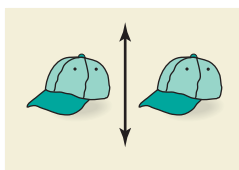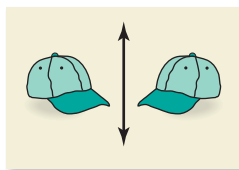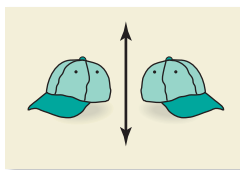
2. **WRITING** How can you tell when one figure is a reflection of another figure?

3. **REASONING** A figure lies entirely in Quadrant I. The figure is reflected in the *x*-axis. In which quadrant is the image?
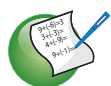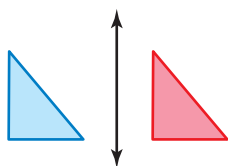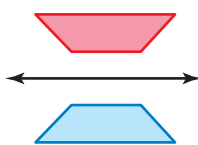
Practice and Problem Solving

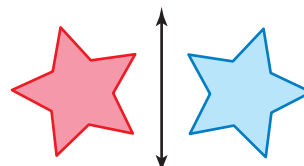Tell whether the blue figure is a reflection of the red figure.
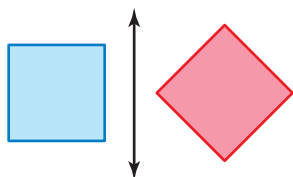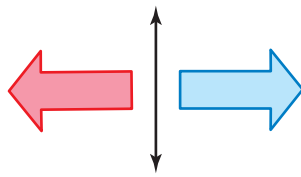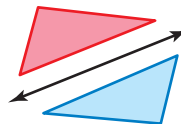
1. 4.

5.

6.

7.

8.

9.

Draw the figure and its reflection in the *x*-axis. Identify the coordinates of the image.

2. 10. $A(3, 2), B(4, 4), C(1, 3)$

11. $M(-2, 1), N(0, 3), P(2, 2)$

12. $H(2, -2), J(4, -1), K(6, -3), L(5, -4)$

13. $D(-2, -1), E(0, -1), F(0, -5), G(-2, -5)$

Draw the figure and its reflection in the *y*-axis. Identify the coordinates of the image.

3. 14. $Q(-4, 2), R(-2, 4), S(-1, 1)$

15. $T(4, -2), U(4, 2), V(6, -2)$

16. $W(2, -1), X(5, -2), Y(5, -5), Z(2, -4)$

17. $J(2, 2), K(7, 4), L(9, -2), M(3, -1)$

18. **ALPHABET** Which letters look the same when reflected in the line?

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z