

# Practice

Form G

## Reflections

Find the coordinates of each image.

1.  $R_{x\text{-axis}}(A)$

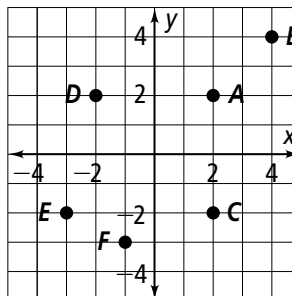
2.  $R_{y\text{-axis}}(B)$

3.  $R_{y=1}(C)$

4.  $R_{x=-1}(D)$

5.  $R_{y=-1}(E)$

6.  $R_{x=2}(F)$



**Coordinate Geometry** Given points  $M(3, 3)$ ,  $N(5, 2)$ , and  $O(4, 4)$ , graph  $\triangle MNO$  and its reflection image as indicated.

7.  $R_{y\text{-axis}}$

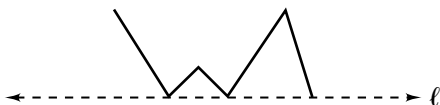
8.  $R_{x\text{-axis}}$

9.  $R_{x=1}$

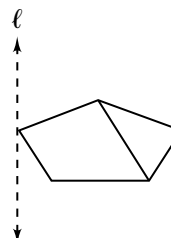
10.  $R_{y=-2}$

Copy each figure and line  $\ell$ . Draw each figure's reflection image across line  $\ell$ .

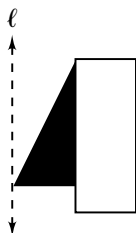
11.



12.



13.



14.



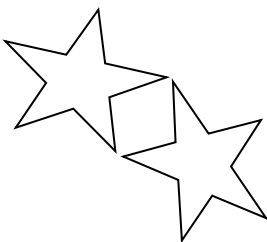
**Practice** (continued)

Form G

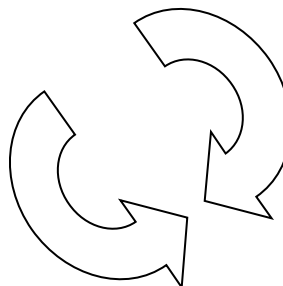
Reflections

Copy each pair of figures. Then draw the line of reflection you can use to map one figure onto the other.

15.



16.



Find the image of  $Z(1, 1)$  after two reflections, first across line  $\ell_1$ , and then across line  $\ell_2$ .

17.  $\ell_1 : x = 2, \ell_2 : y\text{-axis}$

18.  $\ell_1 : x = -2, \ell_2 : x\text{-axis}$

19.  $\ell_1 : y = 2, \ell_2 : x\text{-axis}$

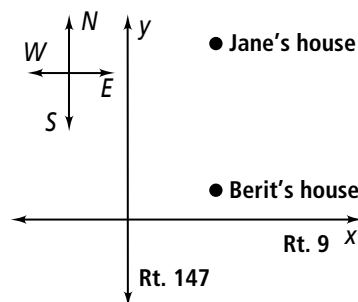
20.  $\ell_1 : y = -3, \ell_2 : y\text{-axis}$

21.  $\ell_1 : x = 3, \ell_2 : y = 2$

22.  $\ell_1 : x = -1, \ell_2 : y = -3$

Use the graph at the right for Exercises 23 and 24.

23. Berit lives 3 mi east of Rt. 147 and 1 mi north of Rt. 9. Jane lives 3 mi east of Rt. 147 and 5 mi north of Rt. 9. The girls want to start at Berit's house, hike to Rt. 147, then on to Jane's house. They want to hike the shortest distance possible. To which point on Rt. 147 should they walk? (*Hint*: First find the line of reflection if Berit's house is reflected onto Jane's house.)



24. Instead of ending the hike at Jane's house, the girls want to hike to an inn 2 mi north of Jane's house. They want to hike the shortest possible total distance, starting from Berit's house, walking to Rt. 147, and then to the inn. To which point on Rt. 147 should they walk? (*Hint*: First find the line of reflection if Berit's house is reflected onto the inn.)

25. Point  $A$  on a coordinate grid is at  $(3, 4)$ . What are the coordinates of  $R_{y=x}(A)$ ?

26. Point  $Z$  on a coordinate grid is at  $(-1, 3)$ . What are the coordinates of  $R_{y=-x}(Z)$ ?

27. Give an example of a place you may see a geometric reflection in everyday life. Explain.