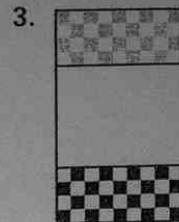
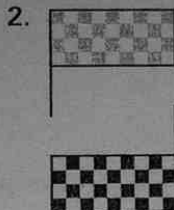
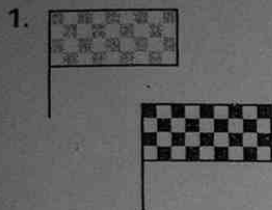


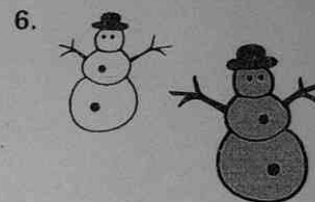
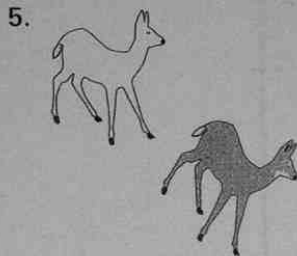
Practice A

For use with pages 396-402

Name the transformation that maps the lighter checkered flag (preimage) onto the darker checkered flag (image).

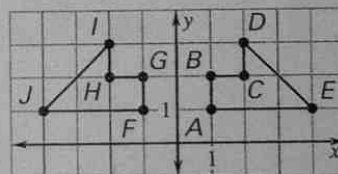


Decide whether the transformation is an isometry. If it is, name the transformation. (Preimages are unshaded; images are shaded.)



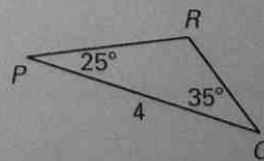
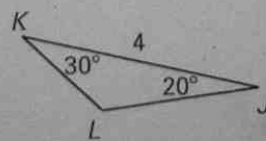
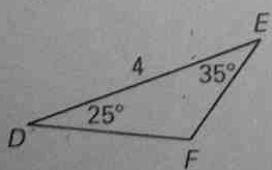
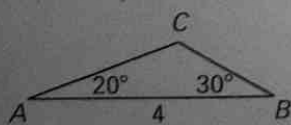
Use the graph of the transformation below. $ABCDE$ is the preimage.

- Figure $ABCDE \rightarrow$ Figure _____.
- Name and describe the transformation.
- Name the image of \overline{CD} .
- Name the preimage of \overline{FJ} .



- Name the coordinates of the preimage of point I .
- Show that \overline{DE} and \overline{IJ} have the same length, using the Distance Formula.

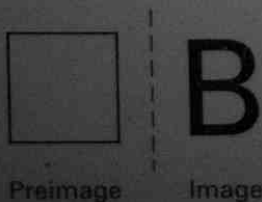
Use the diagrams to complete the statement.



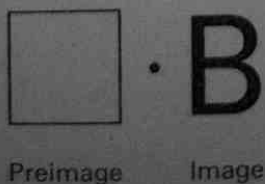
- $\triangle ABC \rightarrow \triangle$ _____ ?
- \triangle _____ ? $\rightarrow \triangle CBA$
- $\triangle DEF \rightarrow \triangle$ _____ ?
- $\triangle RQP \rightarrow \triangle$ _____ ?
- \triangle _____ ? $\rightarrow \triangle ACB$
- \triangle _____ ? $\rightarrow \triangle EFD$

Sketch the preimage if the image was transformed by the following.

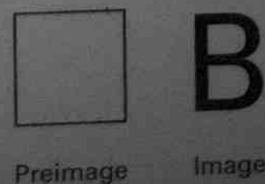
19. Reflection



20. Rotation of 180° clockwise



21. A non-rigid transformation



16: Reflections
Geometry
O'Rielly

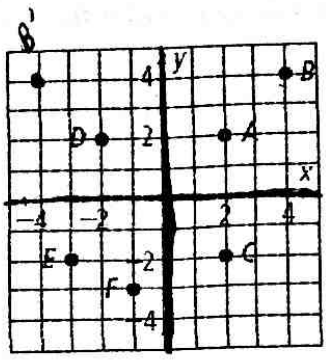
Practice

Form G

Reflections 2-14 even, 18, 20, 22

Find the coordinates of each image.

1. $R_{x\text{-axis}}(A)$
2. $R_{y\text{-axis}}(B)(-4, 4)$
3. $R_{y=1}(C)$
4. $R_{x=-1}(D)$
5. $R_{y=-1}(E)$
6. $R_{x=2}(F)$

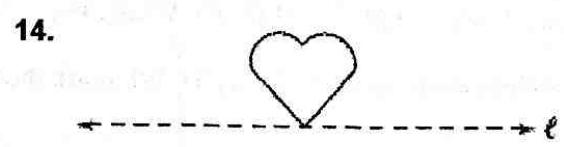
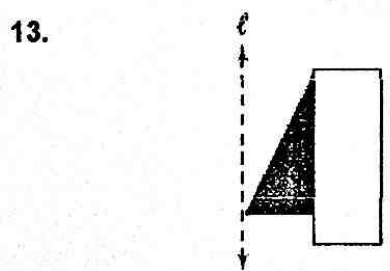
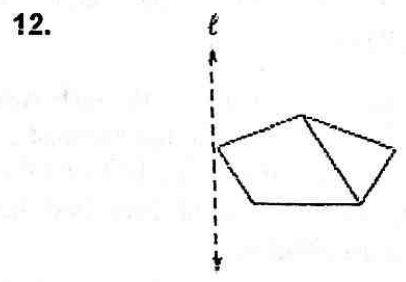
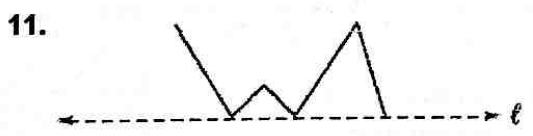


Coordinate Geometry Given points $M(3, 3)$, $N(5, 2)$, and $O(4, 4)$, graph $\triangle MNO$ and its reflection image as indicated.

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

9. $R_{x=1}$
10. $R_{y=-2}$

Copy each figure and line ℓ . Draw each figure's reflection image across line ℓ .



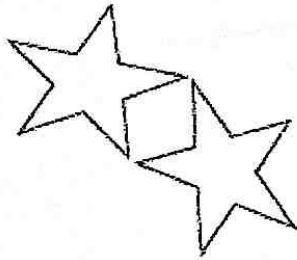
16: Reflections
Geometry
O'Rielly

Practice (continued)
Reflections

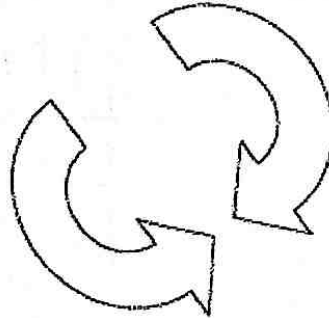
Form G

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 ℓ_1 , and then across line ℓ_2 .

17. $\ell_1 : x = 2, \ell_2 : y\text{-axis}$ $(-3, 1)$

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

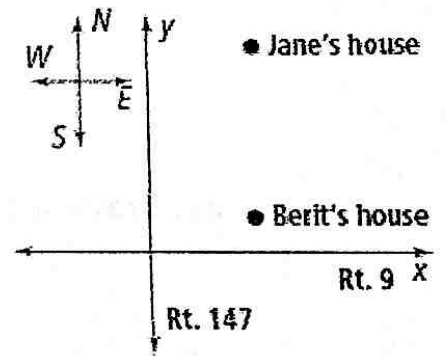
19. $\ell_1 : y = 2, \ell_2 : x\text{-axis}$

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.



Challenge

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.