

Chap. 9 (online) Test Rev A

Tell whether each transformation appears to be a reflection.

1.

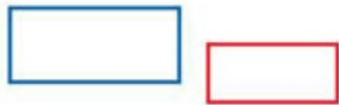


2.

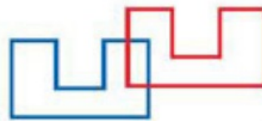


Tell whether each transformation appears to be a translation.

3.



4.



Tell whether each transformation appears to be a rotation.

6.



7.



8. Rotate rectangle $DEFG$ with vertices $D(1, -1)$, $E(4, -1)$, $F(4, -3)$, and $G(1, -3)$ about the origin by 180° .
9. Rectangle $ABCD$ with vertices $A(3, -1)$, $B(3, -2)$, $C(1, -2)$, and $D(1, -1)$ is reflected across the y -axis, and then its image is reflected across the x -axis. Describe a single transformation that moves the rectangle from its starting position to its final position.
10. Tell whether the “no entry” sign has line symmetry. If so, copy the sign and draw all lines of symmetry.
11. Tell whether the “no entry” sign has rotational symmetry. If so, give the angle of rotational symmetry and the order of the symmetry.

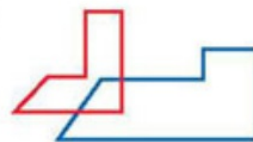


Tell whether each transformation appears to be a dilation.

16.



17.



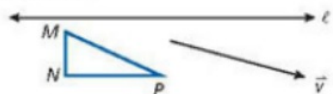
18. Draw the image of $\triangle ABC$ with vertices $A(2, -1)$, $B(1, -4)$, and $C(4, -4)$ under a dilation centered at the origin with scale factor $-\frac{1}{2}$.

9-4 Compositions of Transformation

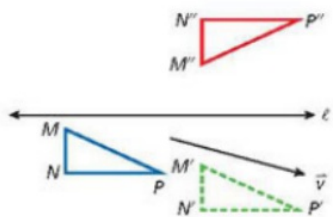
EXAMPLE

- Draw the result of the composition of isometries.

Translate $\triangle MNP$ along \vec{v} and then reflect it across line ℓ .



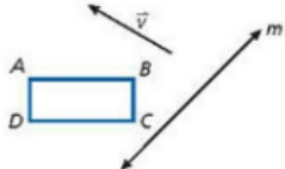
First draw $\triangle M'N'P'$, the translation image of $\triangle MNP$. Then reflect $\triangle M'N'P'$ across line ℓ to find the final image, $\triangle M''N''P''$.



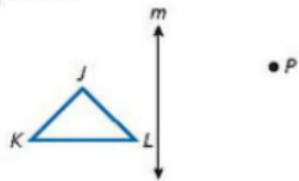
EXERCISES

Draw the result of the composition of isometries.

29. Translate $ABCD$ along \vec{v} and then reflect it across line m .



30. Reflect $\triangle JKL$ across line m and then rotate it 90° about point P .



9-5 Symmetry

EXAMPLES

Tell whether each figure has rotational symmetry. If so, give the angle of rotational symmetry and the order of the symmetry.



no rotational symmetry



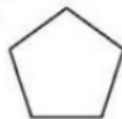
The figure coincides with itself when it is rotated by 90° . Therefore the angle of rotational symmetry is 90° . The order of symmetry is 4.



EXERCISES

Tell whether each figure has line symmetry. If so, copy the figure and draw all lines of symmetry.

31.

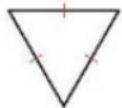


32.



Tell whether each figure has rotational symmetry. If so, give the angle of rotational symmetry and the order of symmetry.

33.



34.



35.



36.

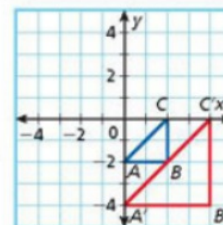


9-7 Dilations

EXAMPLE

- Draw the image of the figure with the given vertices under a dilation centered at the origin using the given scale factor.
 $A(0, -2)$, $B(2, -2)$, $C(2, 0)$; scale factor: 2

Multiply the x - and y -coordinates of each point by 2. The vertices of the image are $A'(0, -4)$, $B'(4, -4)$, and $C'(4, 0)$.



EXERCISES

Tell whether each transformation appears to be a dilation.

43.



44.



Draw the image of the figure with the given vertices under a dilation centered at the origin using the given scale factor.

45. $R(0, 0)$, $S(4, 4)$, $T(4, -4)$; scale factor: $-\frac{1}{2}$

46. $D(0, 2)$, $E(-2, 2)$, $F(-2, 0)$; scale factor: -2

