

Geometry Chapter 4 Review

The vertices of $\triangle ABC$ are $A(1, 3)$, $B(0, -2)$, and $C(-2, 2)$. Translate $\triangle ABC$ using the given vector. Graph $\triangle ABC$ and its image.

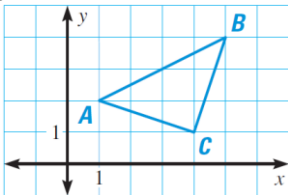
- $\langle 2, 4 \rangle$
- $\langle -3, 1 \rangle$

The vertices of $\triangle ABC$ are $A(1, 3)$, $B(0, -2)$, and $C(-2, 2)$. Translate $\triangle ABC$ using the given rule. Graph $\triangle A'B'C'$.

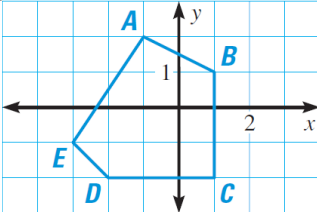
- $(x, y) \rightarrow (x + 4, y - 3)$
- $(x, y) \rightarrow (x - 3, y + 2)$

Graph the reflection of the polygon in the given line.

- y -axis

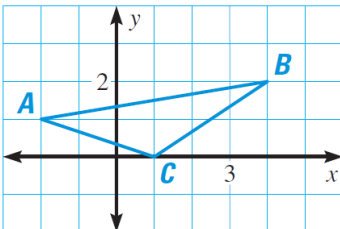


- $y = x$

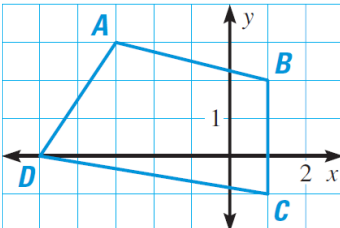


Rotate the figure the given number of degrees about the origin. List the coordinates of the vertices of the image.

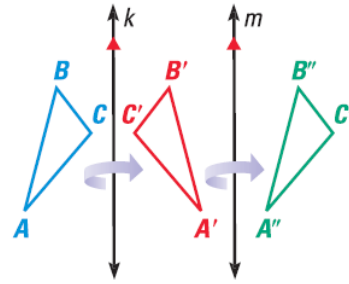
- 270°



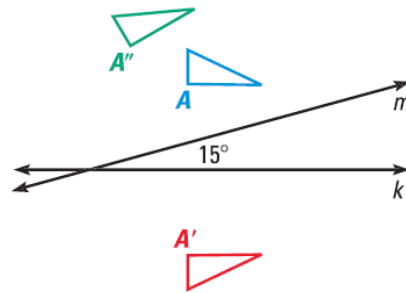
- 180°



Describe a single transformation that maps A to A'' .



9.



10.

The endpoints of $\overline{LM}$ are $L(1, 3)$ and $M(2, 8)$. Find the endpoints of $\overline{L'M'}$ after a dilation centered at the origin with given scale factor.

- $k = 10$
- $k = 0.01$

The vertices of $\triangle PQR$ are $P(-5, 1)$, $Q(-4, 6)$, and $R(-2, 3)$. Graph $\triangle P''Q''R''$ after a composition of the transformations in the order they are listed.

- Translation: $(x, y) \rightarrow (x - 8, y)$
Dilation: centered at the origin, $k = 2$
- Reflection: in the y -axis
Rotation: 90° about the origin

Determine whether the flag has *line symmetry* and/or *rotational symmetry*. Identify all lines of symmetry and/or angles of rotation that map the figure onto itself.



15.



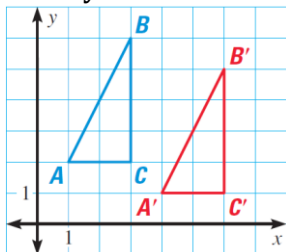
16.



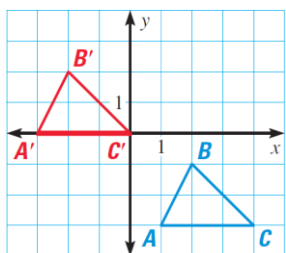
Name: _____

17.

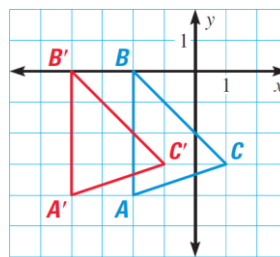
Write a rule for the translation of $\triangle ABC$ to $\triangle A'B'C'$. Then verify that the translation is an rigid motion.



18.



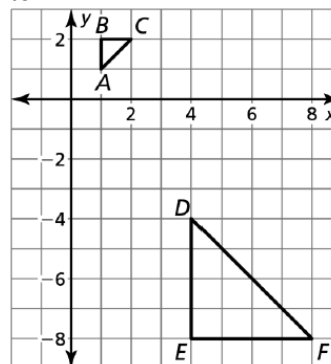
19.



20.

21. You are using a magnifying glass that shows the image of an object as five times the object's actual size. The image has a length of 21.2 centimeters. Find the actual length of the object.

22. Describe a similarity transformation that maps $\triangle ABC$ to $\triangle DEF$.



Answers

- $A'(3, 7), B'(2, 2), C'(0, 6)$
- $A'(-2, 4), B'(-3, -1), C'(-5, 3)$
- $A'(5, 0), B'(4, -5), C'(2, -1)$
- $A'(-2, 5), B'(-3, 0), C'(-5, 4)$
- $A'(-1, 2), B'(-5, 4), C'(-4, 1)$
- $A'(2, -1), B'(1, 1), C'(-2, 1), D'(-2, -2), E'(-1, -3)$
- $A'(1, 2), B'(2, -4), C'(0, -1)$
- $A'(3, -3), B'(-1, -2), C'(-1, 1), D'(5, 0)$
- Translation to the right
- Rotation 30° counterclockwise
- $L'(10, 30), M'(20, 80)$
- $L'(0.01, 0.03), M'(0.02, 0.08)$
- $P''(-26, 2), Q''(-24, 12), R''(-20, 6)$
- $P''(-1, 5), Q''(-6, 4), R''(-3, 2)$
- Line symmetry (two lines of symmetry, one down each diagonals); Rotational symmetry (180° about the center)
- Line symmetry (one horizontal line of symmetry pass through the center); no rotational symmetry

17. Line symmetry (four lines of symmetry, one down each of the diagonals, one vertically down the center and one horizontally through the center); Rotational symmetry (90° or 180° about the center)

18. $(x, y) \rightarrow (x + 3, y - 1)$

19. $(x, y) \rightarrow (x - 4, y + 3)$

20. $(x, y) \rightarrow (x - 2, y)$

21. 4.24 cm

22. Reflection over x-axis, Dilation by factor of 4.