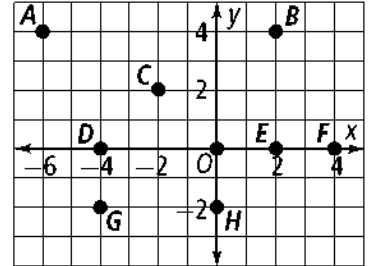


Chapter 9 Review

In the following, refer to the figure at the right.

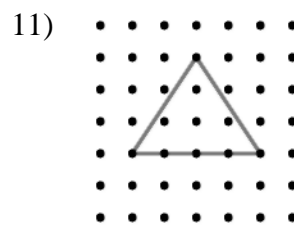
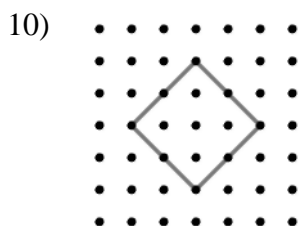
- | | |
|--|---|
| <p>1) What is the image of C under $(x, y) \rightarrow (x + 4, y - 2)$?</p> <p>3) What is the image of H under the vector component $\langle -2, 4 \rangle$?</p> <p>5) What is the image of C under vector component $\langle -2, -4 \rangle$?</p> | <p>2) What rule describes the translation $F \rightarrow B$?</p> <p>4) What rule describes the translation $D \rightarrow H$?</p> <p>6) What rule describes the translation $B \rightarrow A$?</p> |
|--|---|



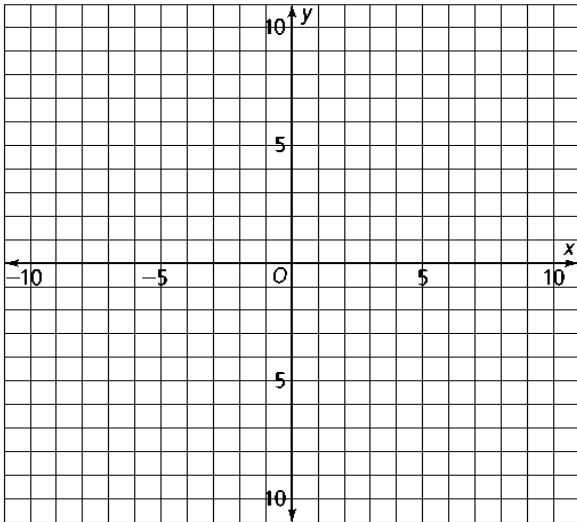
Find the coordinates of the image of each figure under the given translation.

- 7) $\triangle ABC$ with vertices $A(-3, 4)$, $B(-1, -2)$, $C(1, 5)$; translation: $(x, y) \rightarrow (x - 2, y + 5)$
- 8) $\triangle PQR$ with vertices $P(-9, -4)$, $Q(-5, 1)$, $R(2, 8)$; translation: $(x, y) \rightarrow (x - 6, y - 7)$
- 9) A triangle has vertices at $A(-3, -1)$, $B(-2, 2)$, $C(-1, -2)$. Following a transformation, the triangle's image has vertices at $(1, 1)$ and $(2, 4)$. If the transformation is an isometry, what are the coordinates of the image's third vertex?

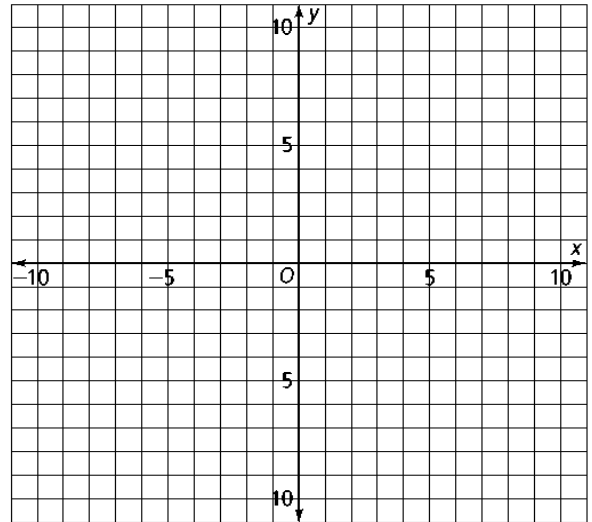
State what kind of symmetry each figure has.



17) $x = -1$

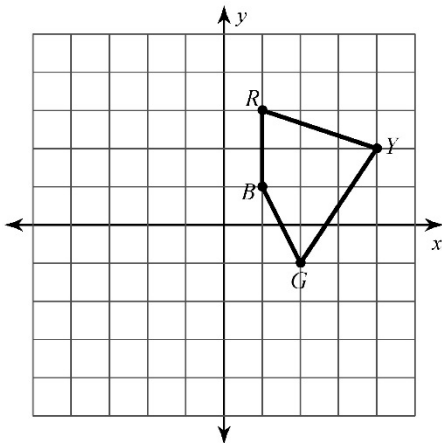


18) $y = x + 4$

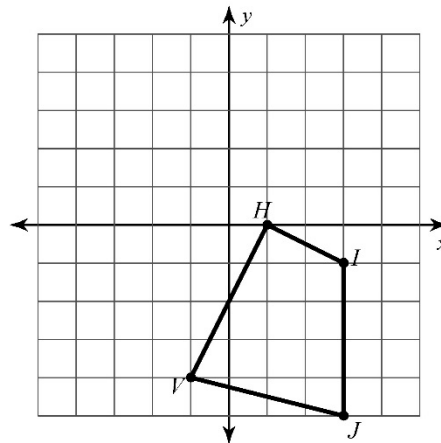


Graph the image of the figure using the given transformation.

19) rotation 180° about the origin

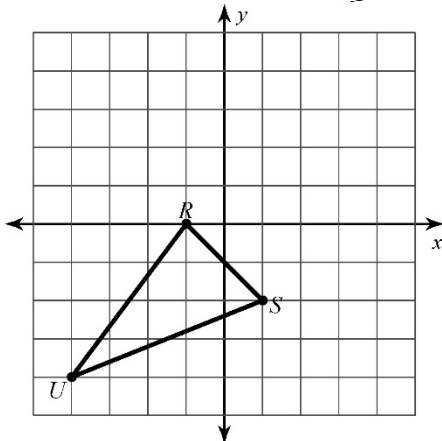


20) rotation 90° counter-clockwise about the origin

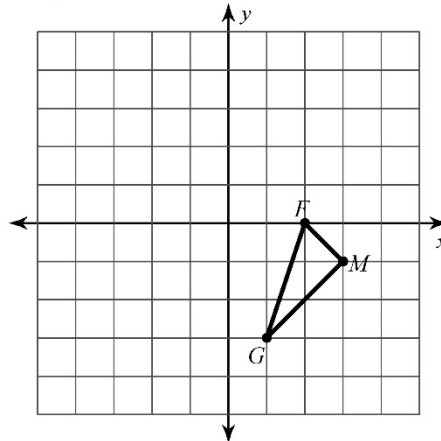


Find the coordinates of the image of the figure using the given transformation.

21) 90° clockwise about the origin



22) rotation 270° clockwise about the origin



Find the coordinates of the image of the figure using the given transformation.

- 23) rotation 180° about the origin
 $L(-3, 2), G(-3, 5), J(1, 5)$

- 24) rotation 90° clockwise about the origin
 $K(1, 0), G(4, 1), Z(3, -4)$

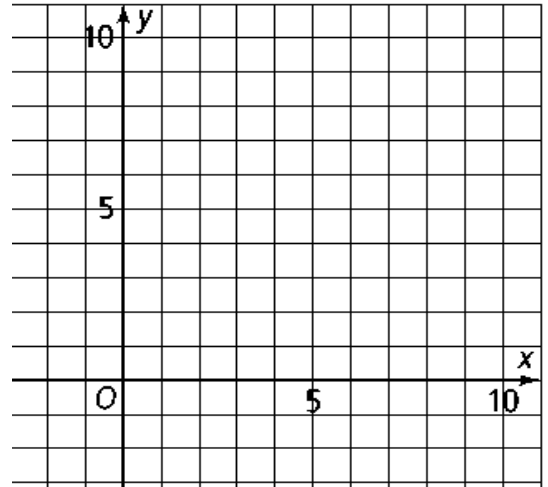
A dilation has center $(0, 0)$. Find the image of each point for the given scale factor.

- 25) $D(2, 2); 3$

- 26) $X(2, -4); 0.25$

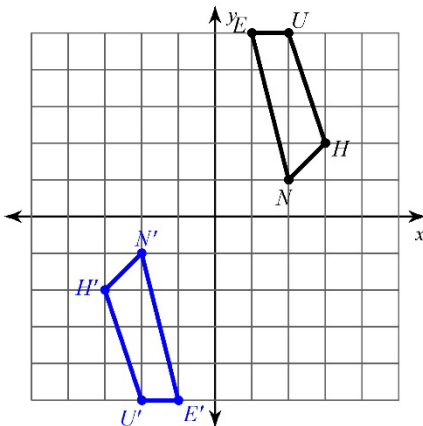
- 27) $C(4, 7); \frac{2}{7}$

- 28) The vertices of trapezoid $ABCD$ are $A(-1, -1), B(-1, 1), C(2, 2)$, and $D(2, -1)$. Draw the trapezoid and its dilation image for a dilation with center $(0, 0)$ and scale factor 3.

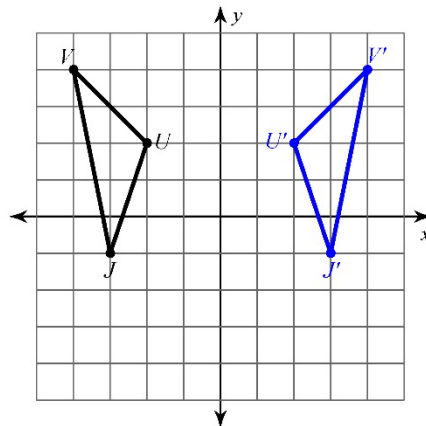


For each of the following, write a rule to describe each transformation.

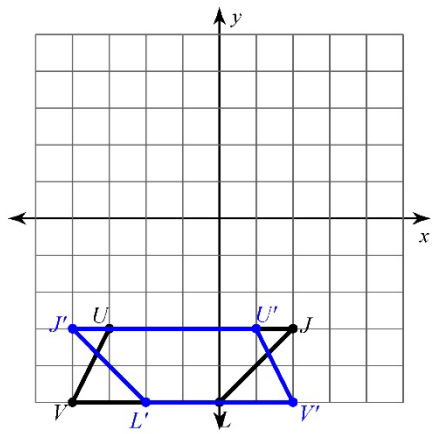
- 29) _____



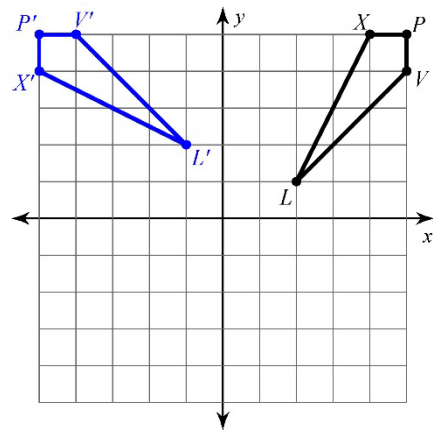
- 30) _____



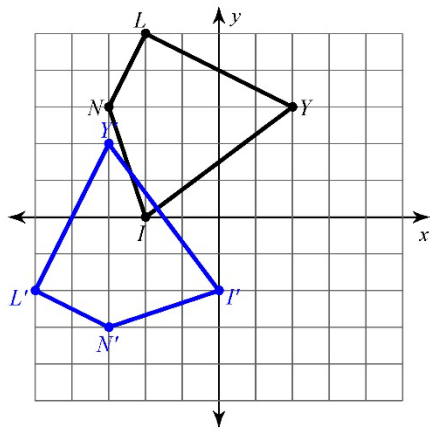
31)



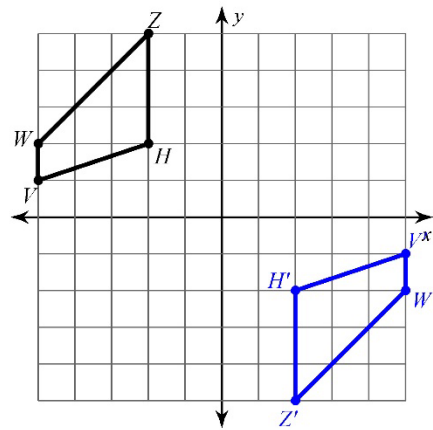
32)



33)

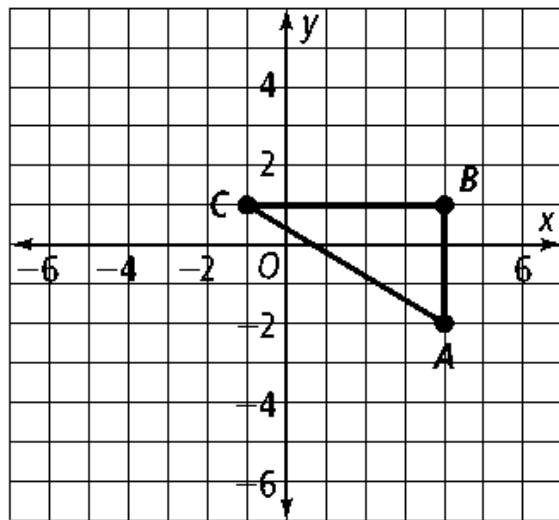


34)

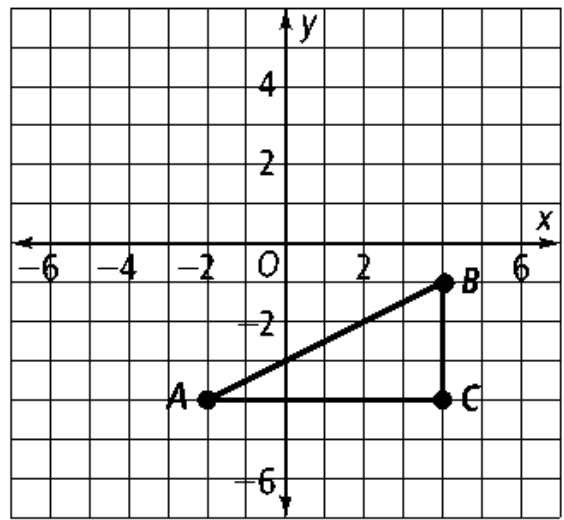


In the following, graph each with the following composition of transformations.

- 35) Translation: $(x, y) \rightarrow (x, y - 3)$
 Reflection: $x = 0$



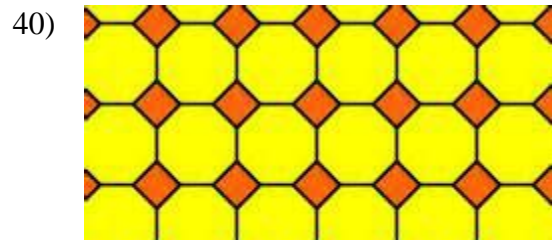
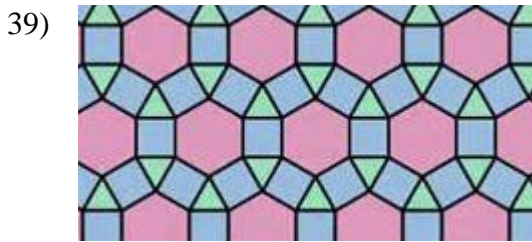
- 36) Translation: $(x, y) \rightarrow (x + 2, y - 1)$
 Rotation: 180 degrees



37) What shapes would produce a regular tessellation?

38) Explain why a regular pentagon would not produce a regular tessellation.

What is the numerical name of the tessellation?



Determine the kind of tessellation is the following:

