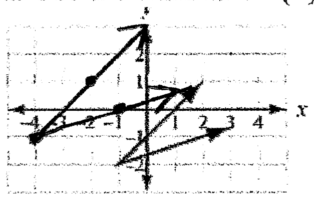
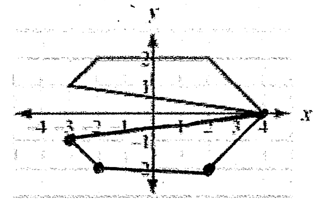
Answer Key

1. Draw the image of each figure, using the given transformation.

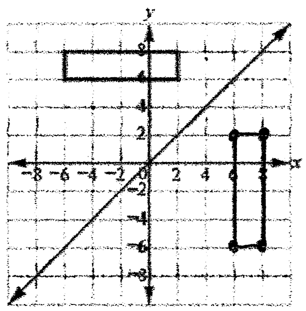
a. Use the translation $(x, y) \rightarrow (x - 3, y + 1)$.



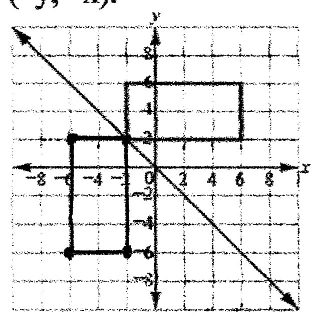
b. Reflect across the x-axis.



c. Reflect across the line $y = x$.

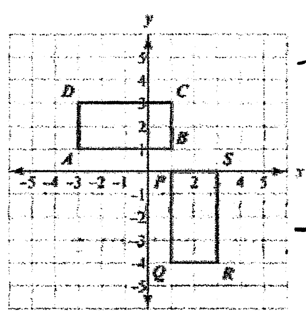


d. Identify the vertices. The reflection image of each point (x, y) across the line $y = -x$ is $(-y, -x)$.



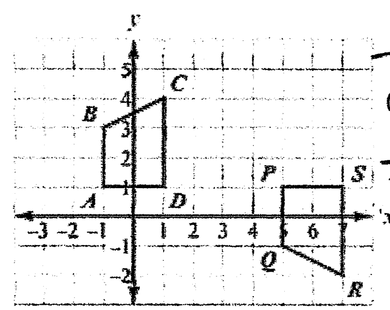
2. Specify a sequence of transformations that will map ABCD to PQRS in each case.

a.



- Rotate 90° clockwise about the origin
- Translate down 3 units

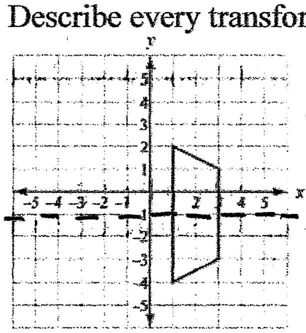
b.



- Reflection across x-axis
- Translate right 6 units

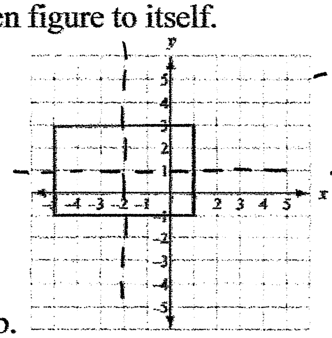
3. Describe every transformation that maps each given figure to itself.

a.



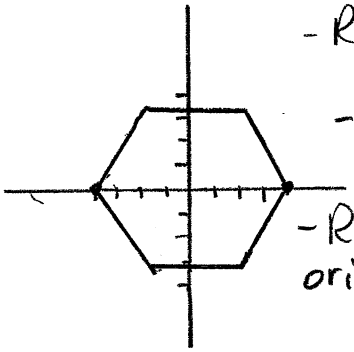
Reflection across $y = -1$

b.



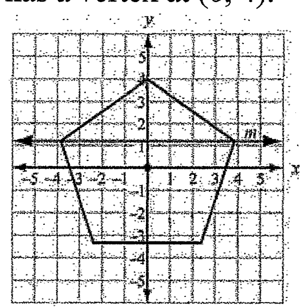
- Reflection across $y = 1$
- Reflection across $x = -2$

4. Describe every transformation that maps this figure to itself: a regular hexagon (6 sides) that is centered about the origin and that has a vertex at (4, 0).



- Reflection across x-axis
- Reflection across y-axis
- Rotation about the origin of 60°, 120°, 180°, 240°, and 300°

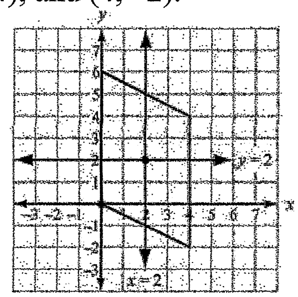
5. A regular pentagon is centered about the origin and has a vertex at (0, 4).



Which transformation maps the pentagon to itself?

~~A~~. a reflection across line m
~~B~~. a reflection across the x-axis
C. a clockwise rotation of 100° about the origin
D. a clockwise rotation of 144° about the origin

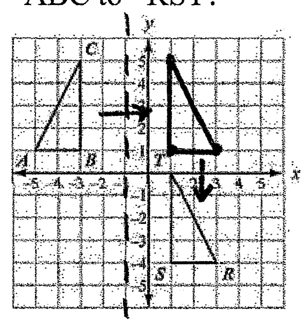
6. A parallelogram has vertices at (0, 0), (0, 6), (4, 4), and (4, –2).



Which transformation maps the parallelogram to itself?

A. a reflection across the line x = 2
B. a reflection across the line y = 2
C. a rotation of 180° about the point (2, 2)
D. a rotation of 180° about the point (0, 0)

7. Which sequence of transformations maps △ABC to △RST?



A. Reflect △ABC across the line x = –1. Then translate the result 1 unit down.

B. Reflect △ABC across the line x = –1. Then translate the result 5 units down.

~~C~~. Translate △ABC 6 units to the right. Then rotate the result 90° clockwise about the point (1, 1).

~~D~~. Translate △ABC 6 units to the right. Then rotate the result 90° counterclockwise about the point (1, 1).