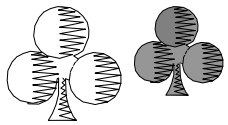
Honors Geometry
Unit 1 – Transformations in the Coordinate Plane

Name _____
Unit Test Review - ANSWERS

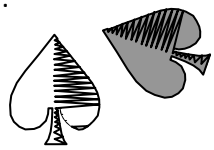
Determine whether or not each transformation is an isometry. If so, identify the type of transformation. (Preimages are unshaded and images are shaded.)

1.



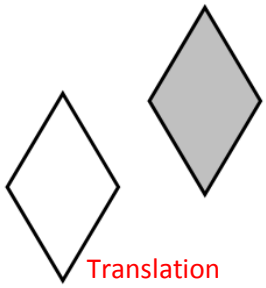
Not an Isometry

2.



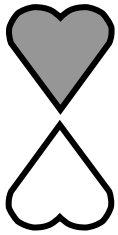
Rotation

3.



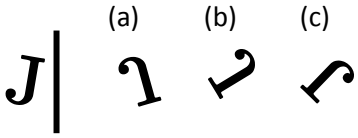
Translation

4.



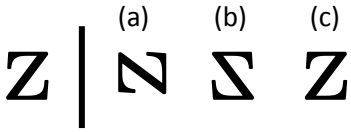
Reflection

5. Which one of the images can be rotated to match the letter ***J*** on the left?



C

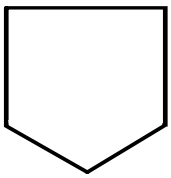
6. Which one of the images can be reflected to match the letter ***Z*** on the left?



B

For each of the following figures, identify how many lines of symmetry each appears to have

7.

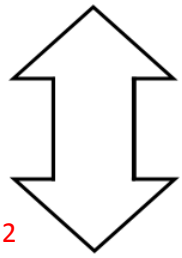


1

8.

4

9.



2

10.

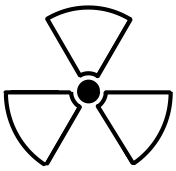
7

For each of the following figures, determine the degree of rotation that will result in the figure being mapped onto itself, and identify the order of rotational symmetry

11.

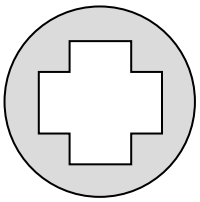
60° 6

12.



120° 3

13.

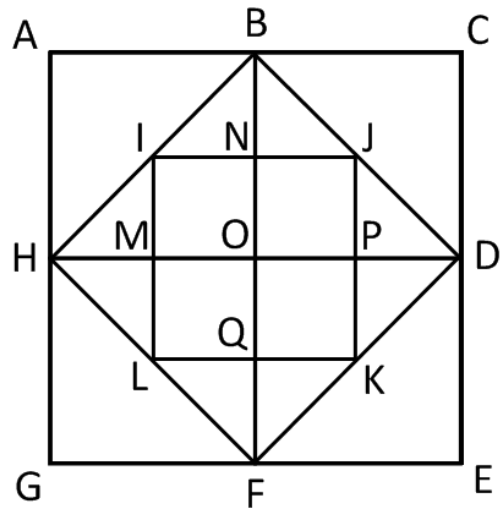


90° 4

14.

45° 8

Find the image of the segment or triangle.



15. 90° clockwise rotation of $\overline{BC}$ about O $\overline{DE}$

16. 90° clockwise rotation of $\overline{JD}$ about O $\overline{KF}$

17. 90° counterclockwise rotation of $\overline{QL}$ about O $\overline{PK}$

18. 90° counterclockwise rotation of $\overline{OM}$ about O $\overline{OQ}$

19. 180° rotation of ΔDEF about O ΔHAB

20. 180° rotation of square $NJPO$ about O $QLMO$

For each of the following vertices of a pre-image, find the coordinates of its image after the given transformation occurs

21. $A(3, -7)$ Reflection across the y-axis $A'(-3, -7)$

22. $B(-4, 12)$ Rotation 90° counterclockwise about the origin $B'(-12, -4)$

23. $C(1, -9)$ Reflection across the line $y = x$ $C'(-9, 1)$

24. $D(-14, 8)$ Reflection across the x-axis $D'(-14, -8)$

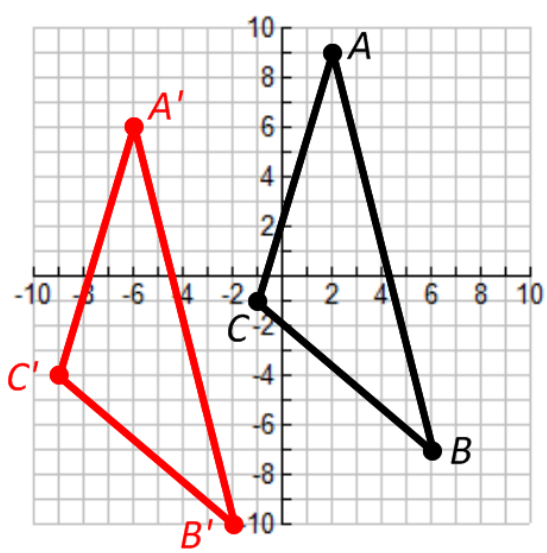
25. $E(5, 16)$ Rotation 180° about the origin $E'(-5, -16)$

26. $F(-10, 2)$ Rotation 90° clockwise about the origin $F'(2, 10)$

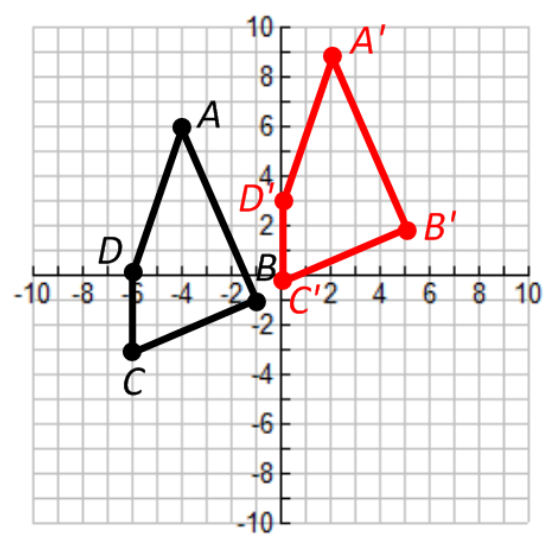
27. $G(7, -15)$ Reflection across the line $y = -x$ $G'(15, -7)$

Using each pre-image and the given transformation, plot the image on the coordinate plane

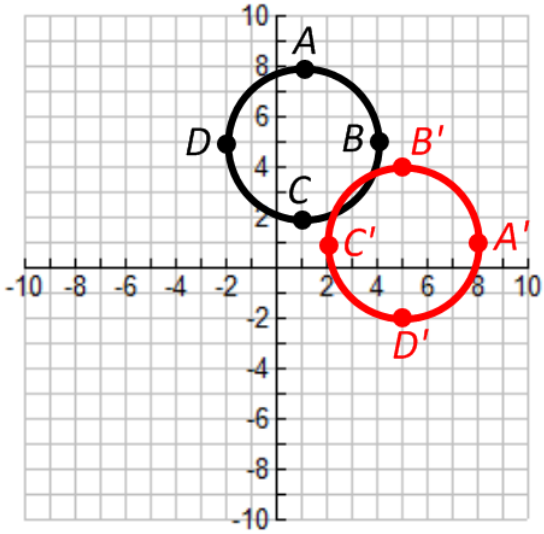
28. $(x, y) \rightarrow (x-8, y-3)$



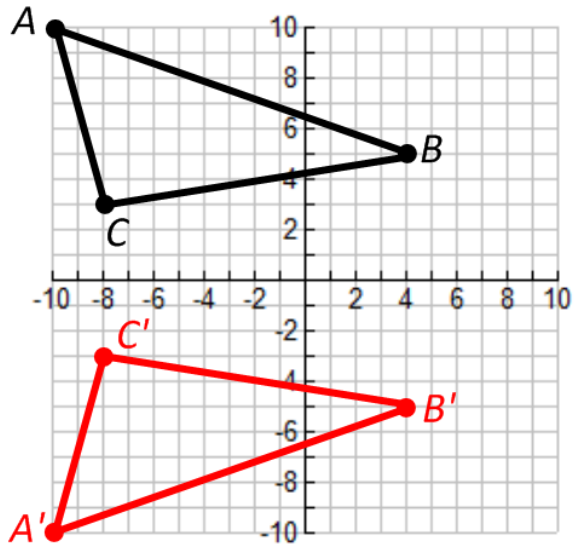
29. $(x, y) \rightarrow (x+6, y+3)$



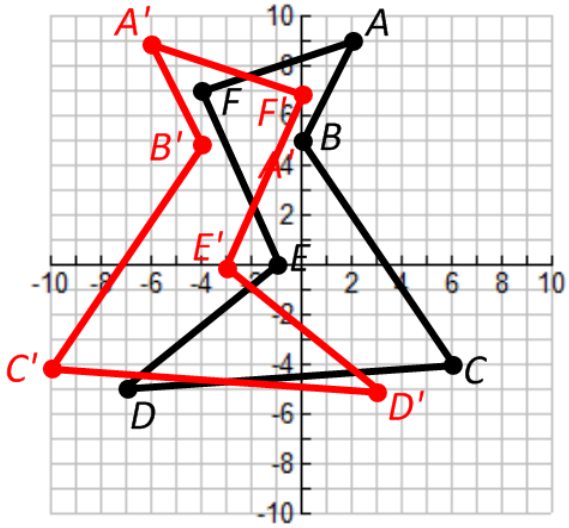
30. Reflection across the line $y = x$



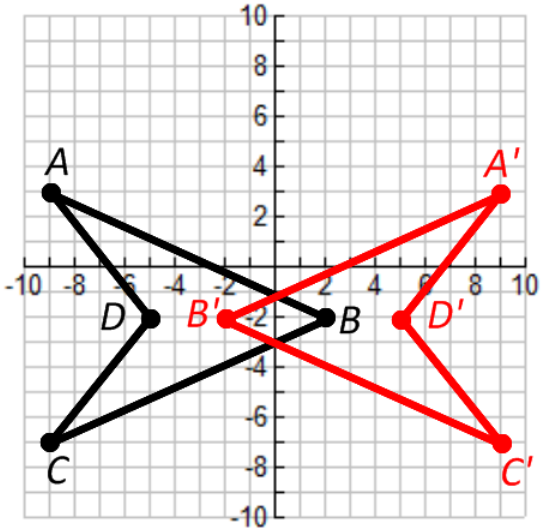
31. Reflection across the x-axis



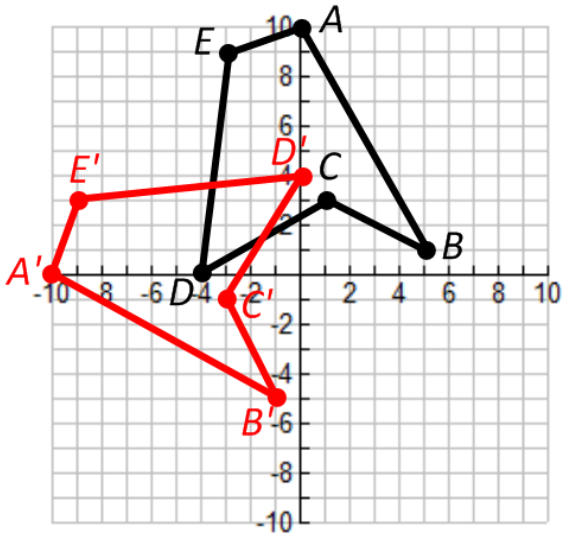
32. Reflection across the line $x = -2$



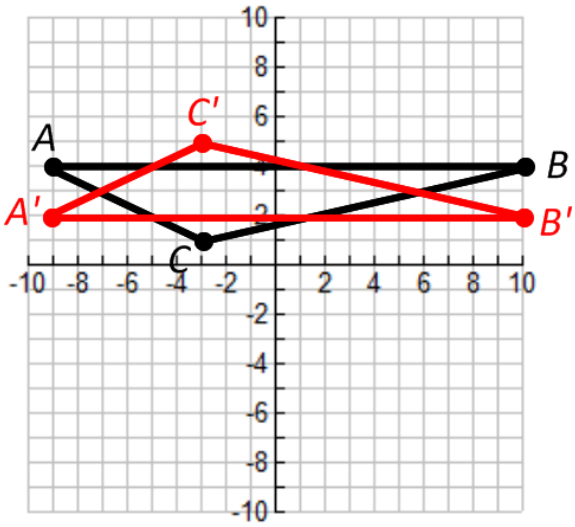
33. Reflection across the y-axis



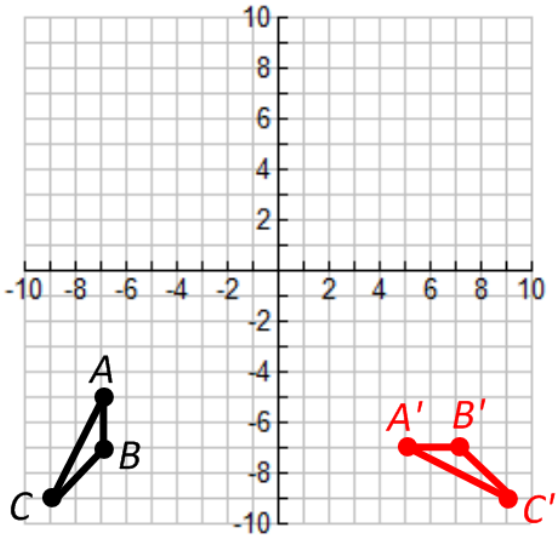
34. Reflection across the line $y = -x$



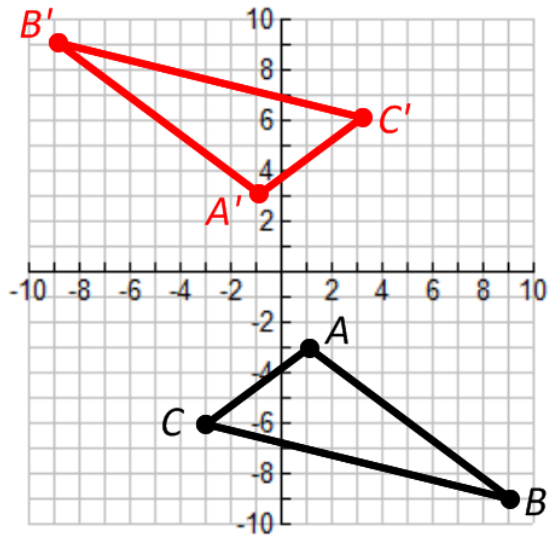
35. Reflection across the line $y = 3$



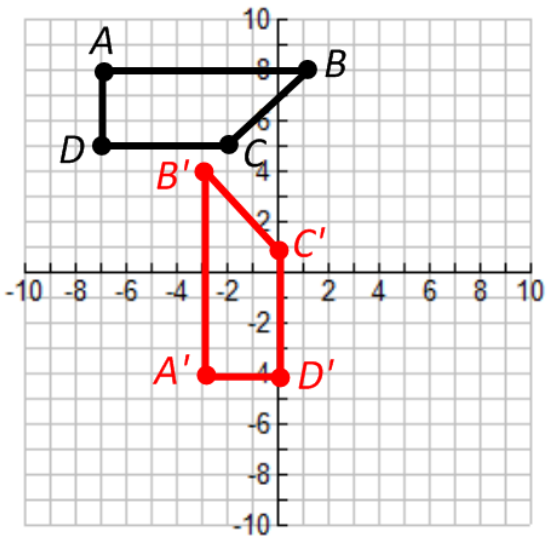
36. Rotation 90° counterclockwise about the origin



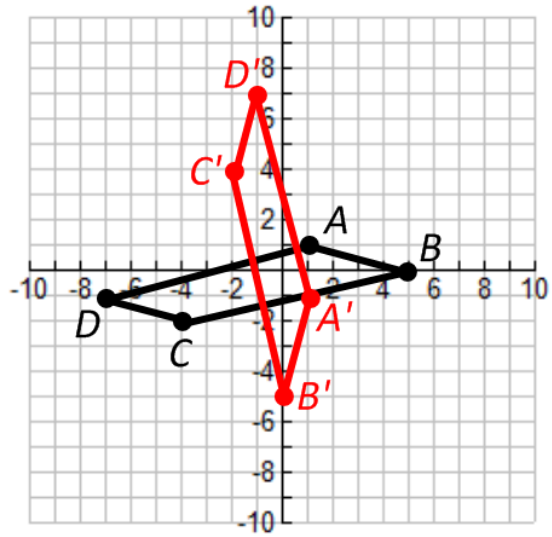
37. Rotation 180° about the origin



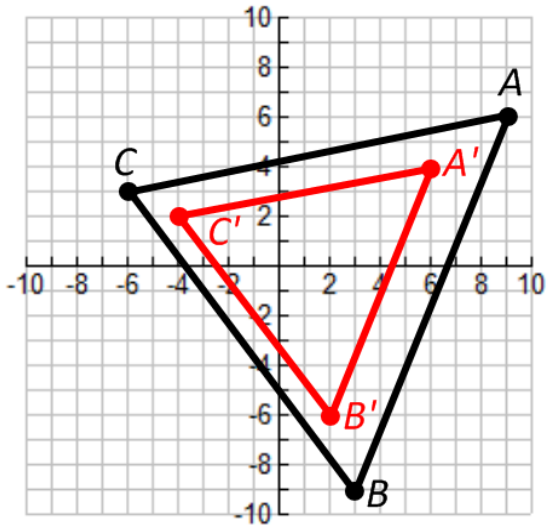
38. Rotation 90° counterclockwise about $(1,4)$



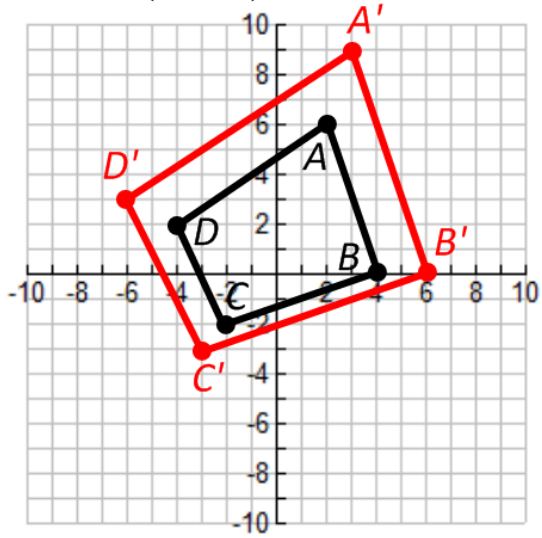
39. Rotation 90° clockwise about the origin



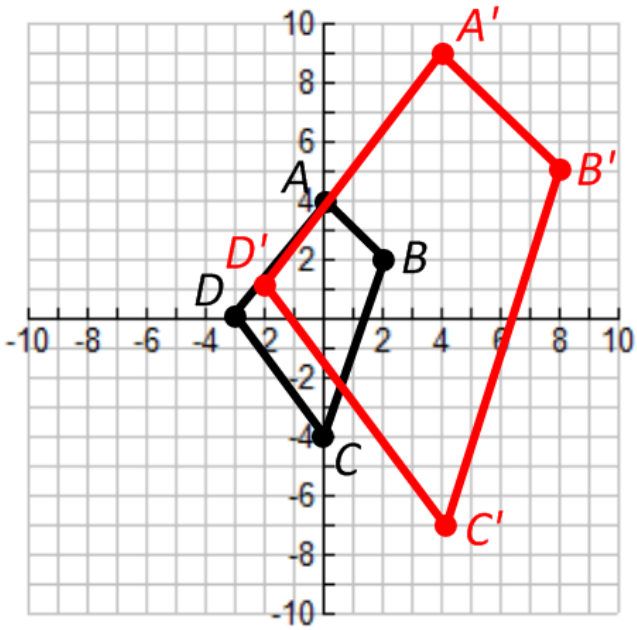
40. $(x, y) \rightarrow \left(\frac{2}{3}x, \frac{2}{3}y\right)$



41. $(x, y) \rightarrow \left(\frac{3}{2}x, \frac{3}{2}y\right)$

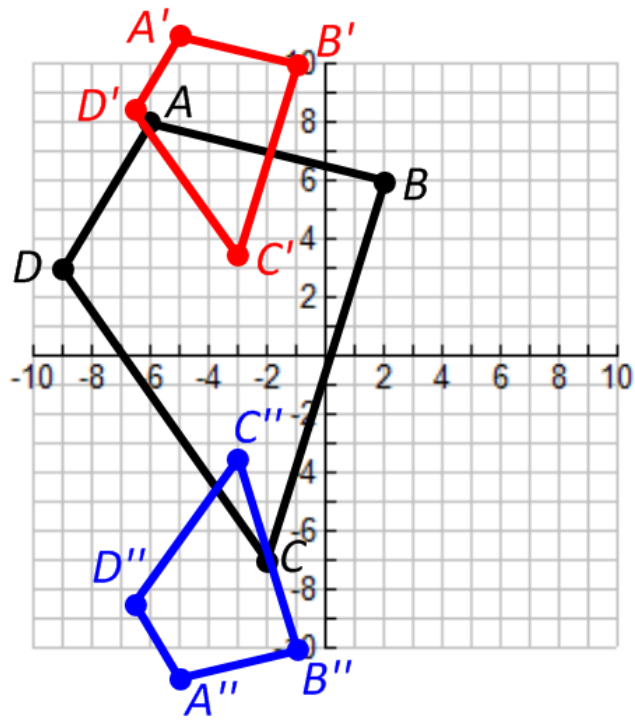


42. $(x, y) \rightarrow (2x+4,\ 2y+1)$



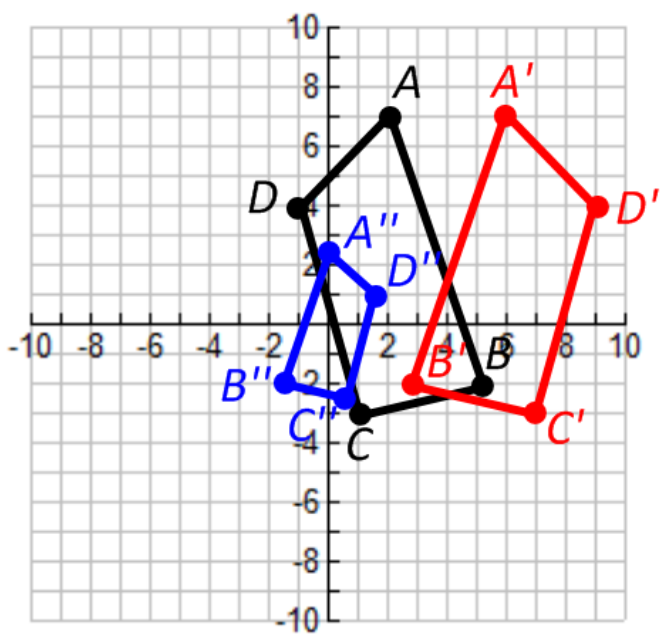
43. $(x, y) \rightarrow \left(\frac{1}{2}x-2,\ \frac{1}{2}y+7\right)$

Reflection across the *x*-axis



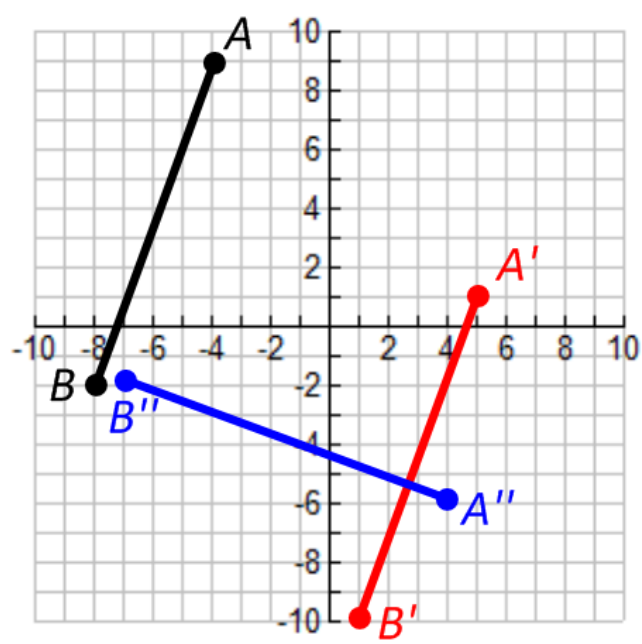
44. Reflection across the line $x = 4$

$(x, y) \rightarrow \left(\frac{1}{2}x-3,\ \frac{1}{2}y-1\right)$



45. $(x, y) \rightarrow (x+9,\ y-8)$

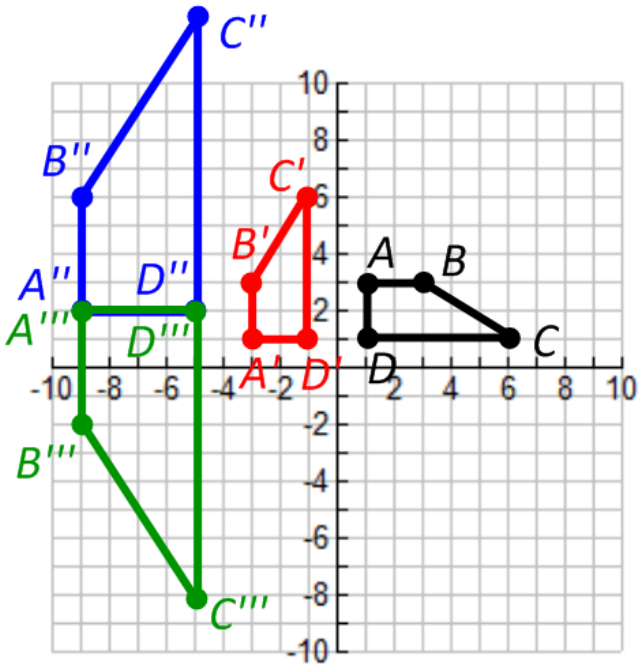
Rotation 90° clockwise about the point $(1,-2)$



46. Rotation 270° clockwise about the origin

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

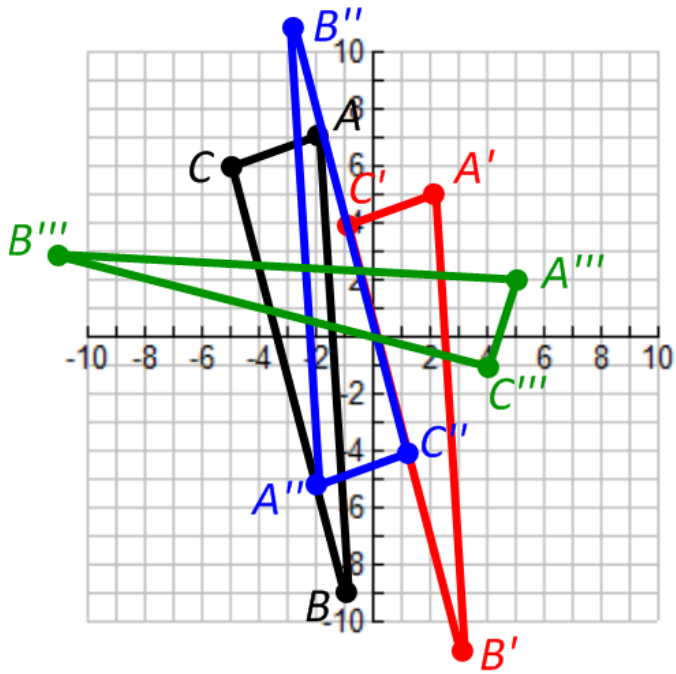
Reflection across the line $y = 2$



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

Rotation 180° about the origin

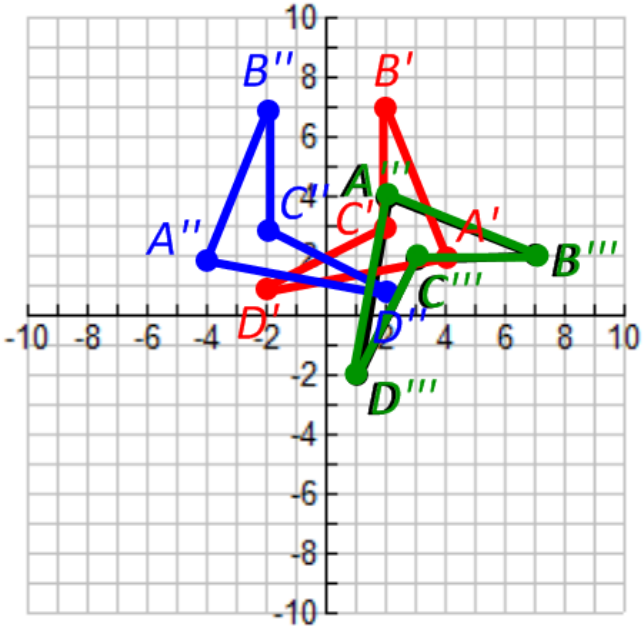
Reflection across the line $y = -x$



48. Reflection across the line $y = x$

Reflection across the y-axis

Rotation 90° clockwise about the origin



49. Rotation 180° about the origin

$(x, y) \rightarrow (3x, 3y+5)$

Reflection across the line $y = -x$