8.G.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

In a coordinate plane, triangle ABC has vertices: A(1, 1), B(1, 5), and C(5, 1)

Triangle ABC is reflected across the x-axis, resulting in triangle A'B'C'. (x, -y)

What are the coordinates of point B'?

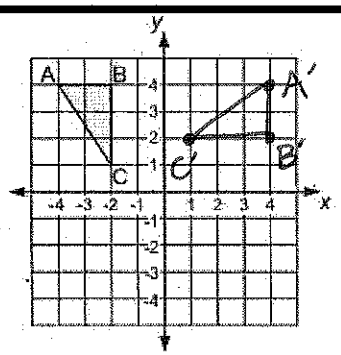
A) (-5, 1) B) (-1, 5)
C) (1, -5) D) (5, -1)

Segment FG begins at point F(-2, 4) and ends at point G(-2, -3). The segment is translated 3 units to the left and 2 units up and then reflected across the y-axis to form F'G'.

What is the length of segment F'G'? 7

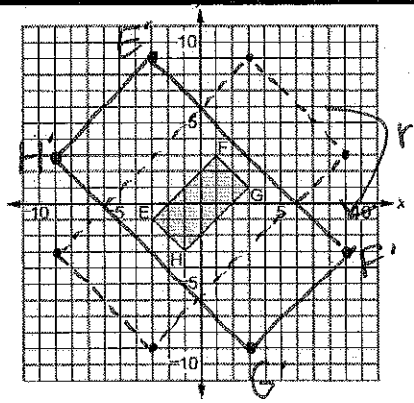
A) 0 units B) 2 units C) 3 units D) 7 units

translations/reflections lead to congruence



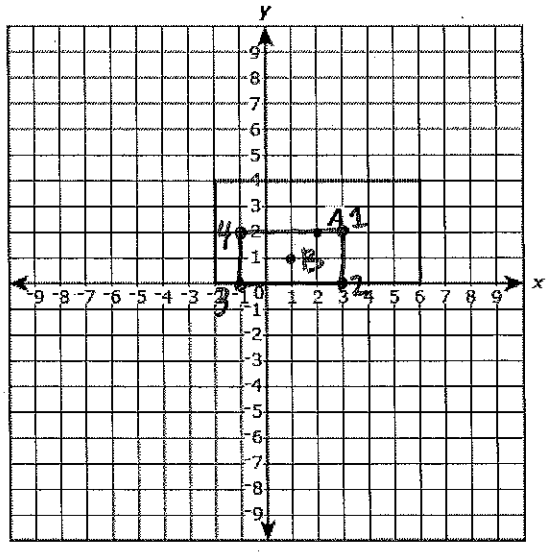
Janet rotated the triangle 90 degrees clockwise about the origin to create figure A'B'C'. What are the coordinates of the vertices of the figure A'B'C' after the rotation?

A. A' (−4, −4), B' (−4, −2), C' (−1, −2)
B. A' (4, 4), B' (2, 4), C' (2, 1)
C. A' (−4, −4), B' (−2, −4), C' (−2, −1)
D. A' (4, 4), B' (4, 2), C' (1, 2)



Rectangle EFGH is dilated with its center at the origin and a scale factor of 3. The dilation is then rotated 90 degrees clockwise about the origin to create rectangle E'F'G'H'. What are the coordinates of the vertices of rectangle E'F'G'H'?

A. E' (−4, 6), F' (6, −4), G' (4, −6), H' (−6, 4)
B. E' (4, −6), F' (−6, 4), G' (−4, 6), H' (6, −4)
C. E' (−3, 9), F' (9, −3), G' (3, −9), H' (−9, 3)
D. E' (3, −9), F' (−9, 3), G' (−3, 9), H' (9, −3)



Rectangle A is dilated by a factor of 0.5 about the origin.

Part A: Create the new rectangle, rectangle B, on the coordinate plane. → multiply coordinates by 0.5

Part B: Rectangle B is reflected across the y-axis (-x, y) to form rectangle C. Write the coordinates for rectangle C. How did they change? y stays same; x changes sign (+/-)

1'(-3, 2) 3'(1, 0)
2'(-3, 0) 4'(1, 2)

Part C: Imagine that Rectangle A is rotated 90 degrees counter-clockwise about the origin to form rectangle D. Would rectangle A be similar to rectangle D? Explain. Rectangle A and D are congruent because rotations do not change size or shape.