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'.

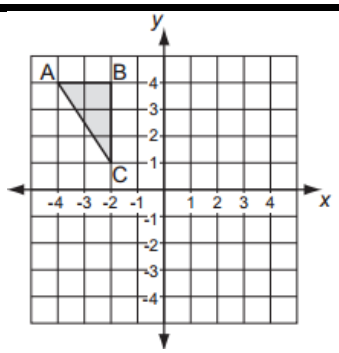
What are the coordinates of point B'?

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'?

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



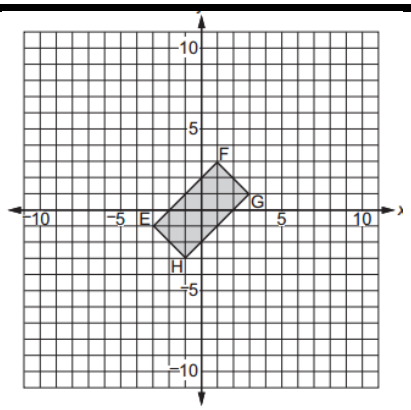
Janet rotated the triangle 90 degrees clockwise about the origin to create figure A'B'C'. What are the coordinates of the vertices of the figure A'B'C' after the rotation?

A. A' (–4, –4)
B' (–4, –2)
C' (–1, –2)

C. A' (–4, –4)
B' (–2, –4)
C' (–2, –1)

B. 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)

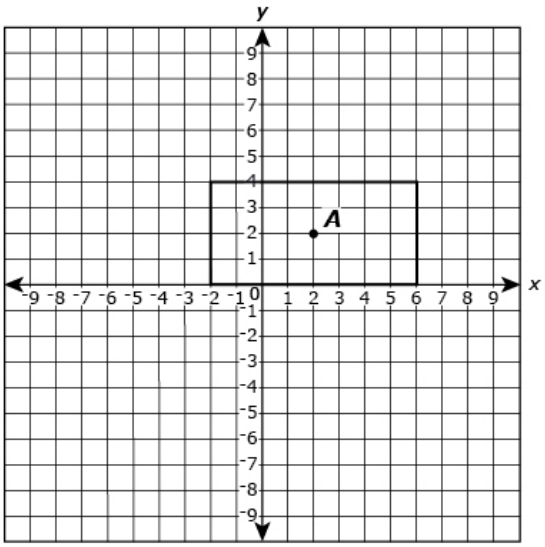
B. E' (4, –6)
F' (–6, 4)
G' (–4, 6)
H' (6, –4)

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.



Part B: Rectangle B is reflected across the y-axis to form rectangle C. Write the coordinates for rectangle C. How did they change?

Part C: Rectangle A is rotated 90 degrees counter-clockwise about the origin to form rectangle D. Graph rectangle D.

Part D: Is rectangle A similar to rectangle D? Explain.

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

Triangle ABC has vertices at A(0, 4), B(2, 10), and C(8, 8) and is dilated by a scale factor of 1/4 , with the origin used as the center of dilation, to produce the image A′B′C′. What are the coordinates of the vertices of the dilated image A′B′C′?

A. A′(0, 1), B′(0.5, 2), C′(4, 4)

B. A′(0, 1), B′(0.5, 2.5), C′(2, 2)

C. A′(1, 1), B′(2, 2), C′(4, 4)

D. A′(1, 0), B′(2.5, 2.5), C′(2, 2)

Which is the image of the point (−6, −9) after a 180° rotation around the origin?

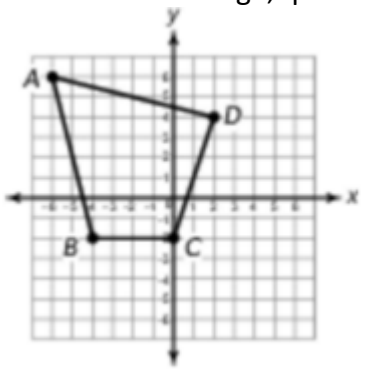
A. (6, 9)

B. (6, −9)

C. (−9, 6)

D. (9, −6)

Quadrilateral ABCD will be dilated with a scale factor of 1/2 . Which of the following will not be a vertex of the image, quadrilateral A′B′C′D′?



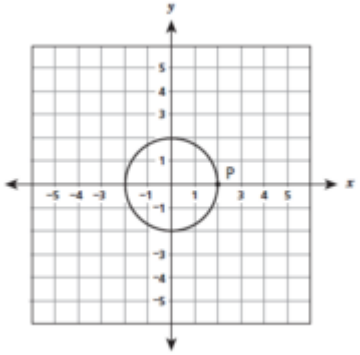
A. (−3, 3)

B. (−2, −1)

C. (−1, 0)

D. (1, 2)

The circle shown below is centered at (0,0) and passes through point P located at (2,0). The circle is dilated with the center of dilation at the origin and a scale factor of 0.5 and then translated up 3 units.



What are the coordinates of the image point P after this transformation?

(A.) (4, 3)
(B.) (1, 3)
(C.) (1, 1.5)
(D.) (0.5, 3)

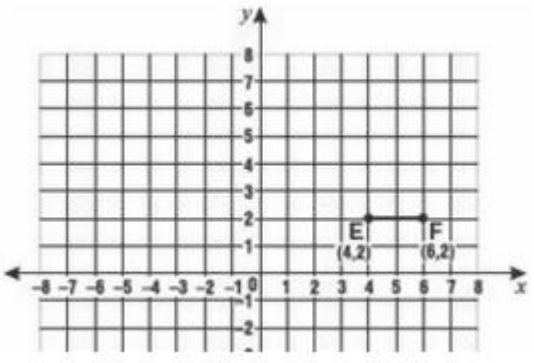
Triangle PQR has vertices P (2, 1), Q (3, -1), R (1, 0). It is rotated 180° clockwise about the origin. Which set of coordinates represents triangle P'Q'R'?

(A.) P' (-1, 2), Q' (1, 3), R' (0, 1)
(B.) P' (-2, -1), Q' (-3, 1), R' (-1, 0)
(C.) P' (1, -2), Q' (-1, -3), R' (0, -1)
(D.) P' (2, 1), Q' (3, -1), R' (1, 0)

Triangle QRS is drawn on a coordinate grid where Q(-3,2), R(6,1), and S(3, -4). Michelle draws its image, ΔQ′R′S′, on the same coordinate grid using the translation rule (x,y)→(x-6, y +1). What are the coordinates of ΔQ′R′S′?

Q′_____
R′_____
S′_____

The diagram below shows the location of $\overline{EF}$ on a coordinate plane. Suppose that $\overline{EF}$ is rotated 180° about the origin.



What are the coordinates of the image of point E?

(A.) (-2, -4)
(B.) (-4, -2)
(C.) (4, -2)
(D.) (-4, 2)