

Grade 8 · Congruence, Dilations and Similarity

· Test

Common Core 8.G.A.2, 8.G.A.3, 8.G.A.4 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

This test covers rigid motions, dilations on the coordinate plane and similar figures (8.G.A.2, 8.G.A.3, 8.G.A.4). There are nine questions worth 20 points in all. Show your work and write coordinates as ordered pairs.

Test information

- **Grade:** Grade 8
- **Chapter:** Congruence, Dilations and Similarity
- **Common Core:** 8.G.A.2, 8.G.A.3, 8.G.A.4
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 2 pts; Question 3: 2 pts; Question 4: 3 pts; Question 5: 2 pts; Question 6: 2 pts; Question 7: 3 pts; Question 8: 2 pts; Question 9: 2 pts)

Question 1: Move a point (2 points)

The point $P(-3,5)$ is moved.

- Translate P 6 units right and 4 units down. Write the image. (1 point)
- Reflect P across the x -axis. Write the image. (1 point)

Question 2: Rotate a point (2 points)

The point $Q(4,-2)$ is rotated about the origin.

- Rotate Q 90° counterclockwise. Write the image. (1 point)
- Rotate Q 180° . Write the image. (1 point)

Question 3: Dilate two points (2 points)

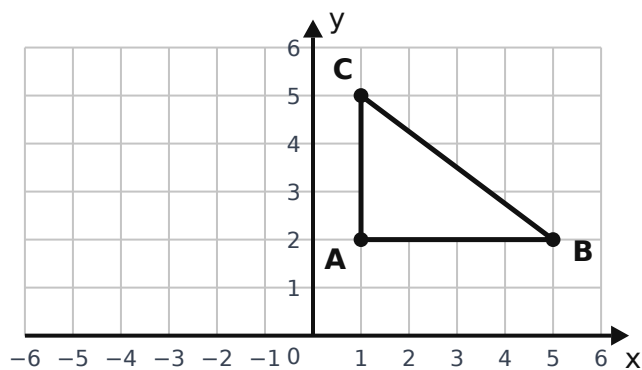
Find the image of each point under a dilation about the origin.

- $R(6,-9)$ with scale factor $\frac{1}{3}$ (1 point)

b. $S(-2,5)$ with scale factor 4 (1 point)

Question 4: Reflect and compare (3 points)

Triangle ABC is reflected across the y -axis to form triangle $A'B'C'$.

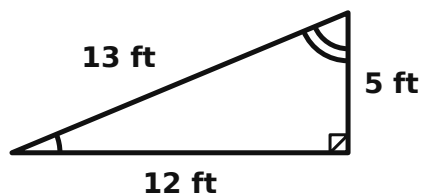


Triangle ABC .

- Write the coordinates of A' , B' and C' . (2 points)
- Is triangle $A'B'C'$ congruent to triangle ABC ? Explain. (1 point)

Question 5: Dilation of a triangle (2 points)

A right triangle has sides 5 ft, 12 ft and 13 ft. It is dilated with scale factor 3.



A right triangle.

- Find the three side lengths of the image. (1 point)
- Find the measure of the right angle in the image. Explain. (1 point)

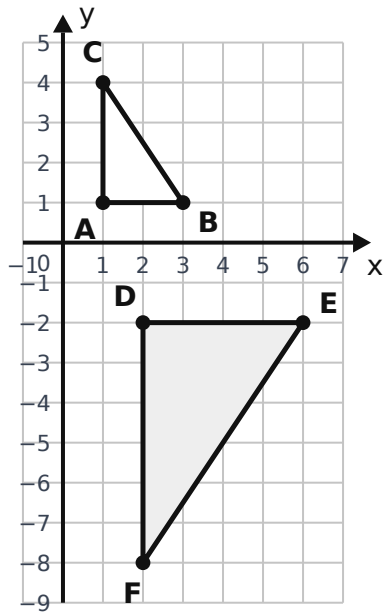
Question 6: Find a scale factor (2 points)

A dilation about the origin sends $A(3,-2)$ to $A'(12,-8)$.

- Find the scale factor. (1 point)
- Find the image of $B(-5,6)$. (1 point)

Question 7: Show similarity (3 points)

Triangle ABC and triangle DEF are shown.



Triangles ABC and DEF .

- Describe a sequence of a dilation about the origin and one rigid motion that maps ABC onto DEF . (2 points)
- Are the triangles similar, congruent, both or neither? Explain. (1 point)

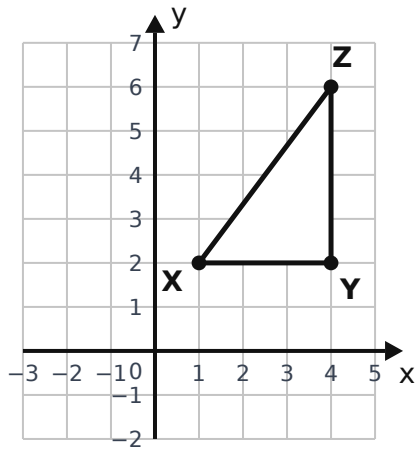
Question 8: Similar rectangles (2 points)

A rectangle is 6 inches wide and 9 inches tall.

- Is it similar to a rectangle that is 8 inches wide and 12 inches tall? Explain. (1 point)
- Is it similar to a rectangle that is 10 inches wide and 16 inches tall? Explain. (1 point)

Question 9: Two rigid motions (2 points)

Triangle XYZ has vertices $X(1,2)$, $Y(4,2)$, $Z(4,6)$. It is translated 2 units left and 3 units down, and the result is reflected across the y -axis.



Triangle XYZ .

- Write the vertices of the final image. (1 point)
- Side XZ has length 5. What is the length of the matching side in the final image? Explain. (1 point)