

Grade 8 · Translations, Reflections and Rotations · Test

Common Core 8.G.A.1, 8.G.A.3 · mathovore.fr

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

This test has 8 questions worth 20 points on translations, reflections and rotations (8.G.A.1, 8.G.A.3). All rotations are counterclockwise about the origin. Show your work, plot on the coordinate planes if needed, and plan on 45 minutes.

Test information

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

Question 1: Move a point (2 points)

Point $P(-3, 4)$ is moved.

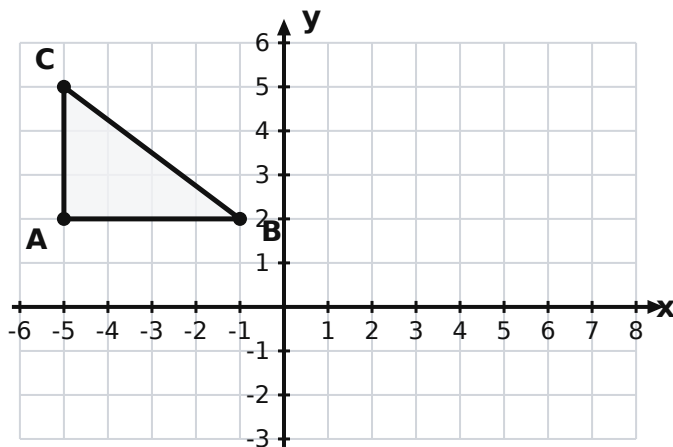
- Translate P 5 units right and 6 units down. Write the image. (1 point)
- Reflect P across the x -axis. Write the image. (1 point)

Question 2: Rotate a point (3 points)

Point $R(2, -5)$ is rotated about the origin counterclockwise. Write the image after a rotation of (a) 90° , (b) 180° , (c) 270° . (1 point each)

Question 3: Translate a triangle (3 points)

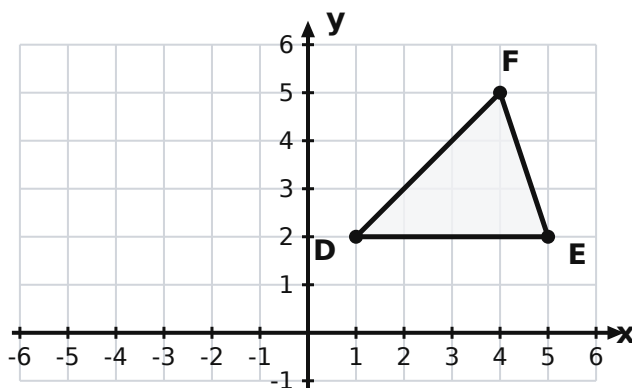
Translate triangle ABC by the rule $(x, y) \rightarrow (x+7, y-3)$. Write the coordinates of A' , B' and C' .



Triangle ABC .

Question 4: Reflect a triangle (3 points)

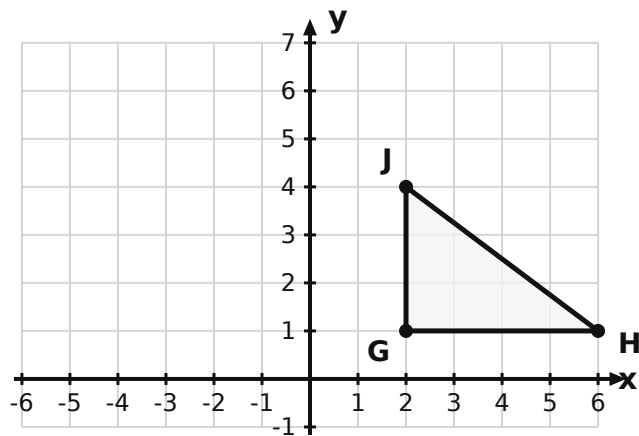
- Reflect triangle DEF across the y -axis. Write the image vertices. (1 point)
- Reflect triangle DEF across the x -axis. Write the image vertices. (1 point)
- In triangle DEF , side $DE = 4$ units and $\angle D = 45^\circ$. Write the length of the image of DE and the measure of the image of $\angle D$ for part (a). (1 point)



Triangle DEF .

Question 5: Rotate a triangle (3 points)

Rotate triangle GHJ by 90° counterclockwise about the origin. Write the image vertices.



Triangle GHJ .

Question 6: Name the motion (2 points)

Triangle ABC has vertices $A(1,3)$, $B(4,3)$, $C(1,5)$. Its image has vertices $A'(-1,-3)$, $B'(-4,-3)$, $C'(-1,-5)$. Name the single rigid motion that was used and write its rule.

Question 7: Properties of rigid motions (2 points)

Parallelogram $ABCD$ has $AB=7$ in, $BC=4$ in and $\angle A=60^\circ$. It is rotated 90° about the origin to form $A'B'C'D'$. Find $A'B'$, $B'C'$ and $\angle A'$, and tell whether $\overline{A'B'}$ and $\overline{C'D'}$ are parallel.

Question 8: Find the original point (2 points)

Point S' is at $(4,-7)$ after a 270° counterclockwise rotation about the origin. Find the original point S .