

Geometry · Rigid Transformations · Test

Common Core G-CO.A.2, G-CO.A.3, G-CO.A.4, G-CO.A.5 · mathovore.fr

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

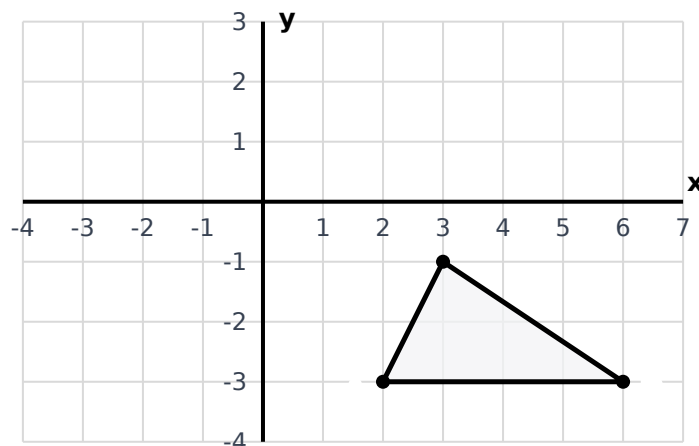
This 45-minute test has 9 questions worth 20 points. It covers translations, reflections, rotations, rigid and non-rigid maps, symmetry, and sequences of transformations on the coordinate plane. Show your work.

Test information

- **Grade:** Geometry
- **Chapter:** Rigid Transformations
- **Common Core:** G-CO.A.2, G-CO.A.3, G-CO.A.4, G-CO.A.5
- **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: Translate a triangle (2 points)

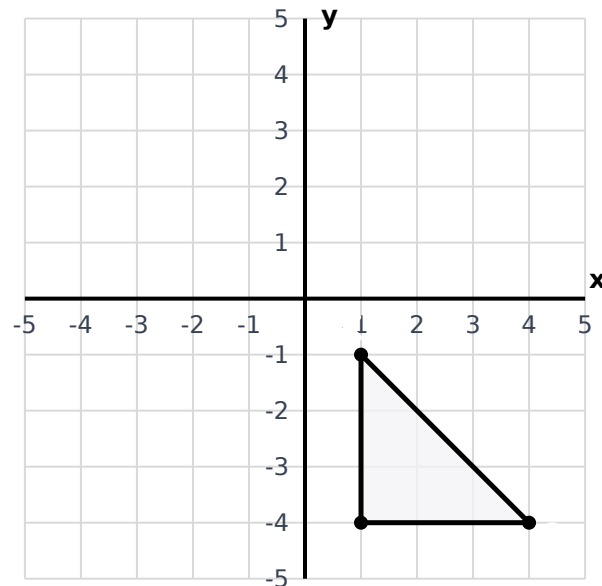
Translate triangle ABC by $\langle -4, 3 \rangle$. Write the coordinates of the three image vertices.



Triangle ABC.

Question 2: Reflect over $y = x$ (2 points)

Reflect triangle JKL over the line $y = x$. Write the coordinates of the image vertices.



Triangle JKL.

Question 3: Rotate clockwise (2 points)

Rotate each point 90° clockwise about the origin.

- a. $(3, 2)$
- b. $(-4, 5)$
- c. $(0, -6)$

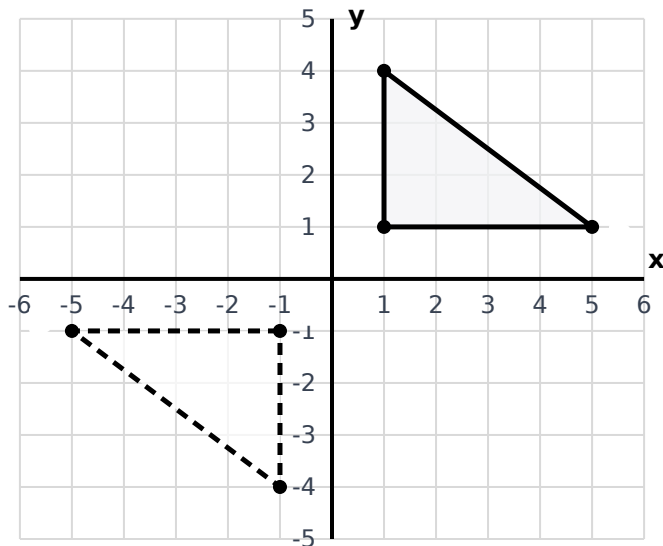
Question 4: Sequence of transformations (3 points)

Triangle DEF has vertices $D(1, 2)$, $E(4, 2)$, $F(1, 6)$. It is reflected over the y -axis and then translated by $\langle 2, -3 \rangle$.

- a. Find the coordinates of the final image. (2 points)
- b. Show that side DE has the same length as its final image. (1 point)

Question 5: Identify the transformation (2 points)

Triangle ABC is mapped onto triangle $A'B'C'$. Name the transformation and describe it completely.



Pre-image (solid) and image (dashed).

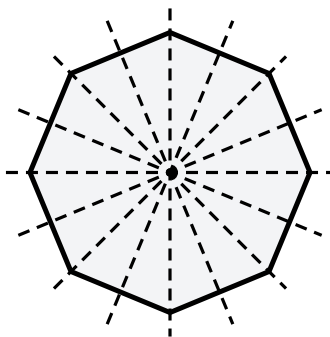
Question 6: Rigid or not rigid (2 points)

The rule (x, y) to $(x, 3y)$ is applied to segment AB with $A(1, 1)$ and $B(1, 4)$.

- Find the length of AB and the length of its image. (1 point)
- Is the rule a rigid transformation? Explain. (1 point)

Question 7: Symmetry (3 points)

A regular octagon is shown.

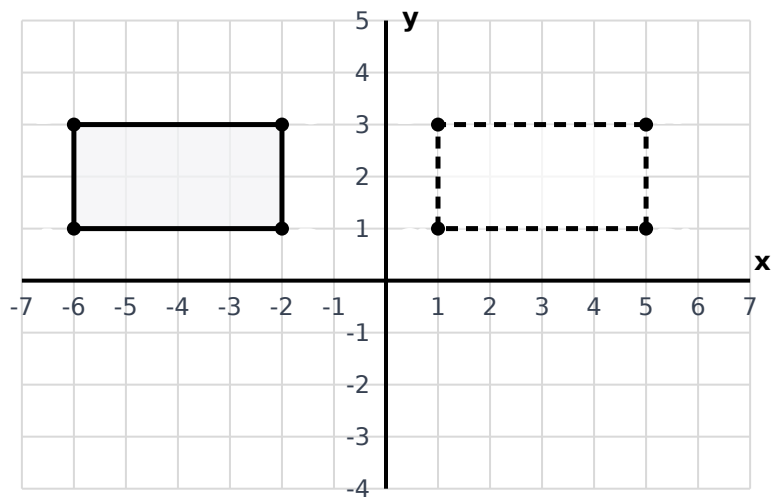


Regular octagon.

- How many lines of symmetry does it have? (1 point)
- What is the smallest positive rotation about its center that maps it onto itself? (1 point)
- How many lines of symmetry does a rectangle that is not a square have? (1 point)

Question 8: Describe a sequence (2 points)

Rectangle $ABCD$ is mapped onto rectangle $A'B'C'D'$ by a sequence of two rigid transformations. Describe one such sequence.



Pre-image (solid) and image (dashed).

Question 9: Robot position (2 points)

Diego programs a robot that starts at $(-3, 4)$ on a grid. It reflects over the x-axis and then moves by the vector $\langle 5, 2 \rangle$. Where does it end?