

Grade 8 · Translations, Reflections and Rotations · Test Answer Key

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

Use this key to score the transformations test out of 20 points. Each solution shows the work and how the points are awarded. Give partial credit for the correct rule even if one coordinate has an arithmetic slip.

Grade 8 Common Core: 8.G.A.1 · 8.G.A.3

Question 1: Move a point (2 points)

(a) $(-3+5, 4-6) = (2, -2)$.

(b) $(x, -y): (-3, -4)$.

Scoring: 1 point for each correct image.

Question 2: Rotate a point (3 points)

(a) $(-y, x) = (5, 2)$.

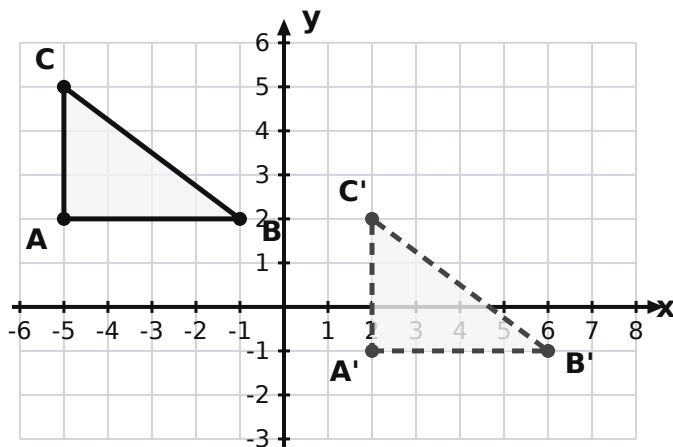
(b) $(-x, -y) = (-2, 5)$.

(c) $(y, -x) = (-5, -2)$.

Scoring: 1 point for each correct image.

Question 3: Translate a triangle (3 points)

$A'(2, -1), B'(6, -1), C'(2, 2)$.

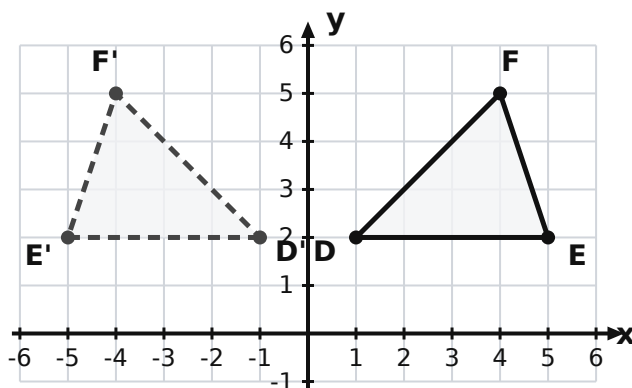


Triangle ABC and its image.

Scoring: 1 point for each correct vertex.

Question 4: Reflect a triangle (3 points)

(a) $D'(-1,2)$, $E'(-5,2)$, $F'(-4,5)$.



Triangle DEF and its reflection across the y -axis.

(b) $D'(1,-2)$, $E'(5,-2)$, $F'(4,-5)$.

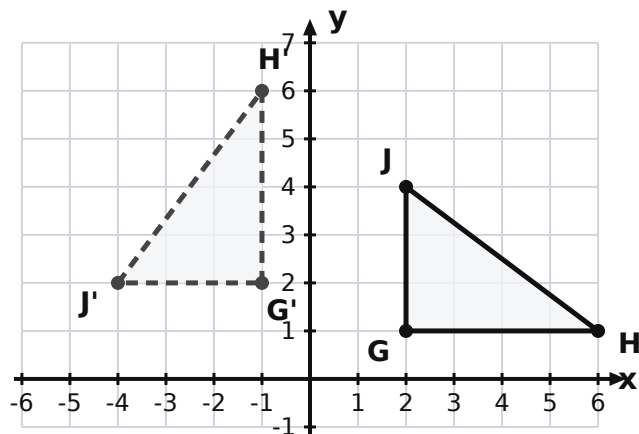
(c) Reflections keep lengths and angles: $D'E' = 4$ and $\angle D' = 45^\circ$.

Scoring: 1 point for (a), 1 point for (b), 1 point for (c).

Question 5: Rotate a triangle (3 points)

Use $(x,y) \rightarrow (-y,x)$.

$G'(-1,2)$, $H'(-1,6)$, $J'(-4,2)$.



Triangle GHJ and its image.

Scoring: 1 point for the rule used, 1 point for two correct vertices, 1 point for all three correct.

Question 6: Name the motion (2 points)

Both coordinates changed sign: $(1,3) \rightarrow (-1,-3)$, $(4,3) \rightarrow (-4,-3)$, $(1,5) \rightarrow (-1,-5)$.

The motion is a **rotation of 180° about the origin**, $(x,y) \rightarrow (-x,-y)$.

Scoring: 1 point for the rotation of 180 degrees, 1 point for the rule.

Question 7: Properties of rigid motions (2 points)

A rotation keeps lengths and angle measures: $A'B' = 7$ in, $B'C' = 4$ in, $\angle A' = 60^\circ$.

Rotations keep parallel lines parallel, and $\overline{AB}$ is parallel to $\overline{CD}$, so the images **are parallel**.

Scoring: 1 point for the two lengths and the angle, 1 point for parallel with the reason.

Question 8: Find the original point (2 points)

The rule is $(x,y) \rightarrow (y,-x)$. So $y = 4$ and $-x = -7$, so $x = 7$.

Check: $(7,4) \rightarrow (4,-7)$.

The original point is $S(7,4)$.

Scoring: 1 point for using the rule correctly, 1 point for $S(7,4)$.

Total
20 points