Test: Transformations

1.

What is the image of the point $(2,-3)$ after the transformation $r_{y\text{-axis}}$?

(1) $(2,3)$ (3) $(-2,3)$

(2) $(-2,-3)$ (4) $(-3,2)$
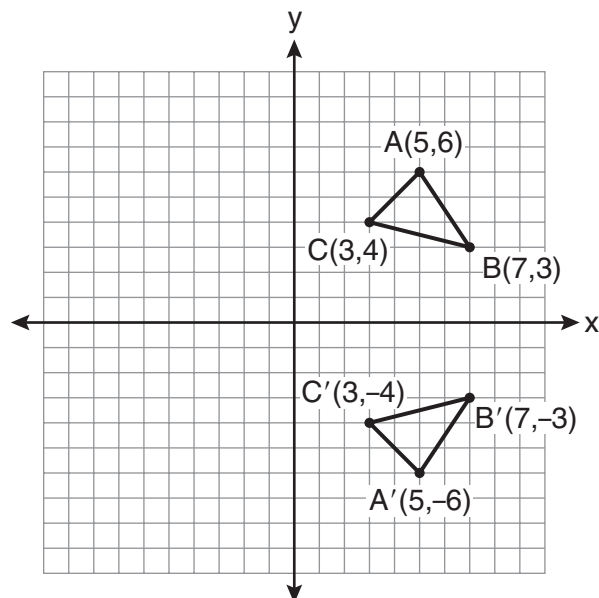
2.

When a quadrilateral is reflected over the line $y = x$, which geometric relationship is *not* preserved?

(1) congruence   (3) parallelism

(2) orientation   (4) perpendicularity

3.

Which expression best describes the transformation shown in the diagram below?

(1) same orientation; reflection

(2) opposite orientation; reflection

(3) same orientation; translation

(4) opposite orientation; translation

4. Triangle *DEG* has the coordinates *D*(2, 1), *E*(6, 2), and *G*(6, 6). Triangle *DEG* is translated $T_{-8, +1}$. Complete the table mapping each coordinate pair onto its image, then plot and label both triangles on the grid.

$$T_{-8, +1}$$

$D(2, 1) \quad \rightarrow$

$E(6, 2) \quad \rightarrow$

$G(6, 6) \quad \rightarrow$
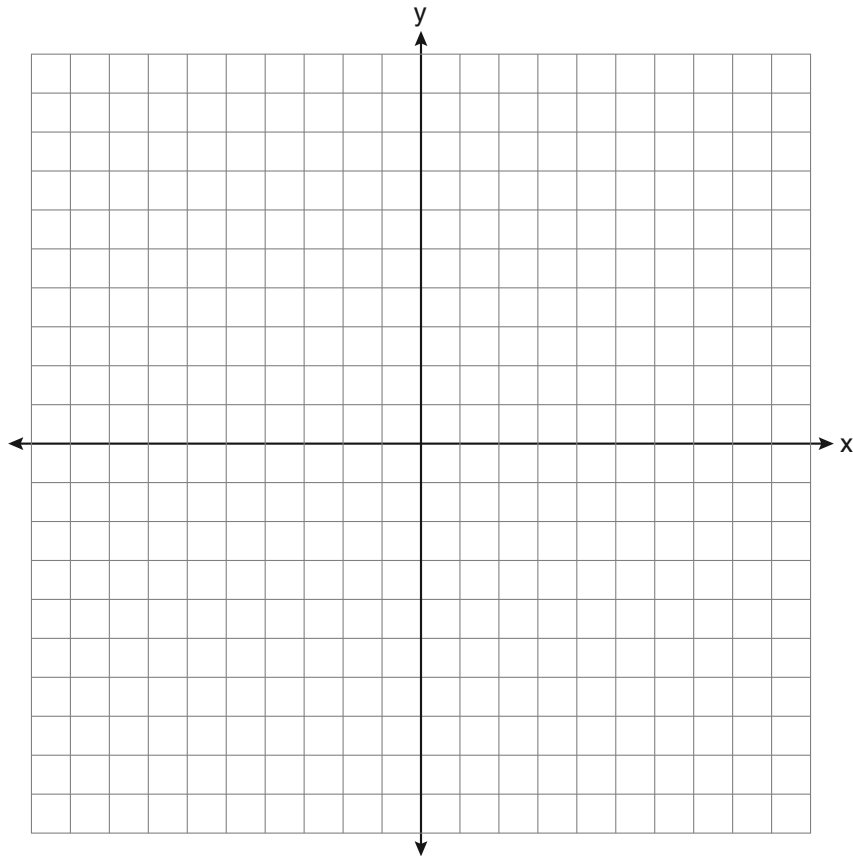
Justify that the transformation preserves distance.

5.

Which transformation produces a figure similar but *not* congruent to the original figure?

(1) $T_{1,3}$ (3) $R_{90°}$

(2) $D_{\frac{1}{2}}$ (4) $r_{y\,=\,x}$

6. The point A is located at (4, -7). The point is reflected in the *y*-axis.
    Its image is located at

(1) $(-4,7)$ (3) $(4,7)$

(2) $(-4,-7)$ (4) $(7,-4)$

7.

Which transformation is *not* always an isometry?

(1) rotation   (3) reflection

(2) dilation   (4) translation

8.

Pentagon $PQRST$ has $\overline{PQ}$ parallel to $\overline{TS}$. After a translation of $T_{2,-5}$, which line segment is parallel to $\overline{P'Q'}$?

(1) $\overline{R'Q'}$ (3) $\overline{T'S'}$
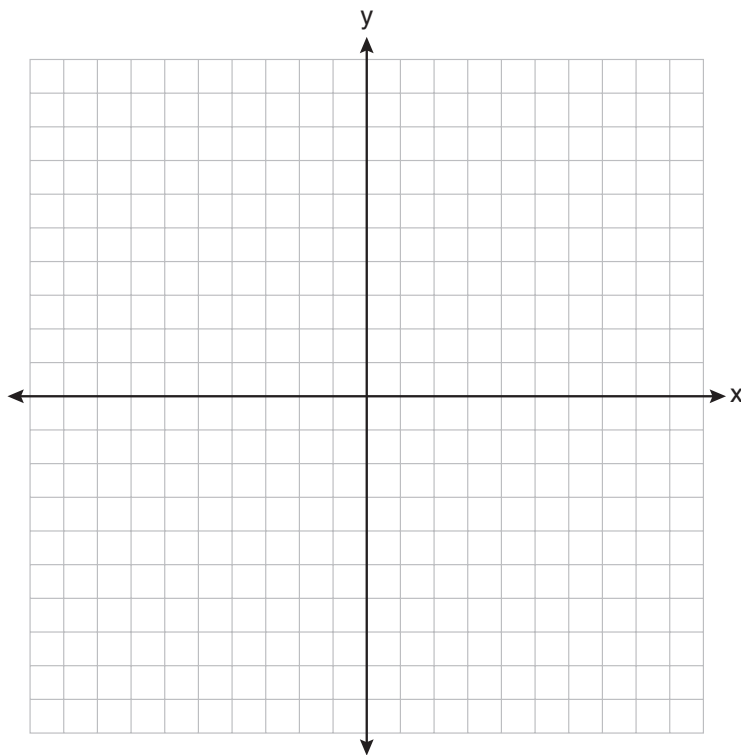
(2) $\overline{R'S'}$ (4) $\overline{T'P'}$

9.

35 Triangle ABC has coordinates $A(2,-2)$, $B(2,1)$, and $C(4,-2)$. Triangle $A'B'C'$ is the image of $\triangle ABC$ under $T_{5,-2}$.

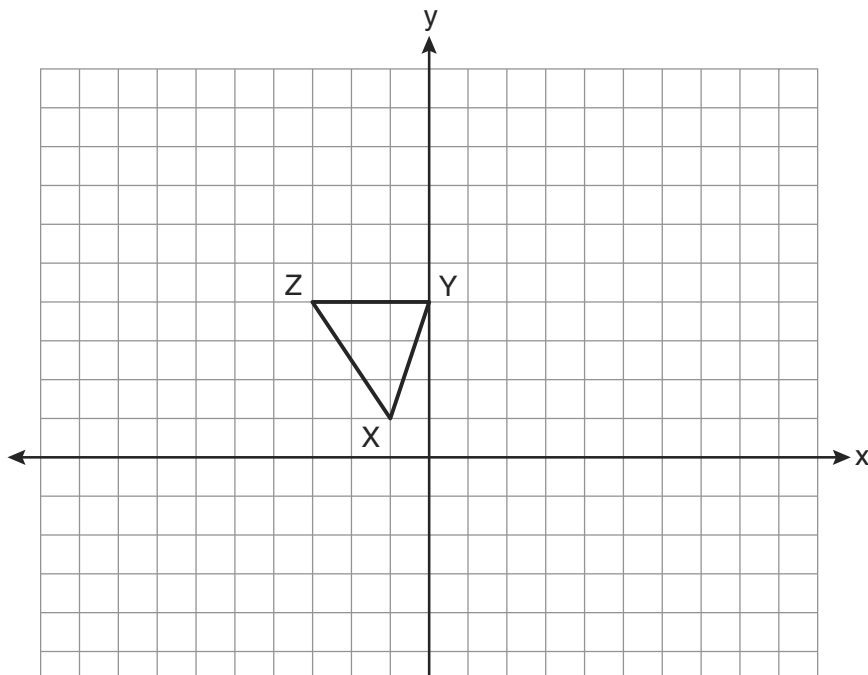On the set of axes below, graph and label $\triangle ABC$ and its image, $\triangle A'B'C'$.

Determine the relationship between the area of $\triangle ABC$ and the area of $\triangle A'B'C'$.

Justify your response.

10.

Triangle *XYZ*, shown in the diagram below, is reflected over the line $x = 2$. State the coordinates of △*X′Y′Z′*, the image of △*XYZ*.

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1. When the transformation $T_{2,-1}$ is performed on point
   A, its image is point $A'(-3, 4)$. What are the
   coordinates of A?

   A) $(5, -5)$ B) $(-5, 5)$
   C) $(-1, 3)$ D) $(-6, -4)$

2. Triangle ABC has the coordinates A(3,0), B(3,8), and
   C(6,6). If $\triangle ABC$ is reflected over the line $y = x$,
   which statement is true about the image of $\triangle ABC$?

   A) One point remains fixed.
   B) The size of the triangle changes.
   C) The orientation does not change.
   D) One side of $\triangle ABC$ is parallel to the line $y = x$.

3. The coordinates of $\triangle ABC$, shown on the graph below, are $A(2, 5), B(5, 7),$ and $C(4, 1)$.
   Graph and label $\triangle A'B'C'$, the image of $\triangle ABC$ after it is reflected over the y-axis.