

**Pre-Quiz: Transformations**

**1.**

Point A is located at  $(4, -7)$ . The point is reflected in the  $x$ -axis. Its image is located at

- (1)  $(-4, 7)$
- (2)  $(-4, -7)$
- (3)  $(4, 7)$
- (4)  $(7, -4)$

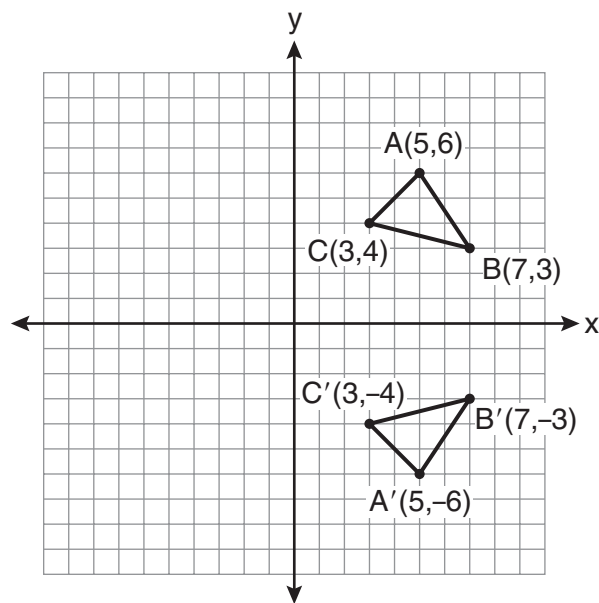
**2.**

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

- (1) congruence
- (2) orientation
- (3) parallelism
- (4) perpendicularity

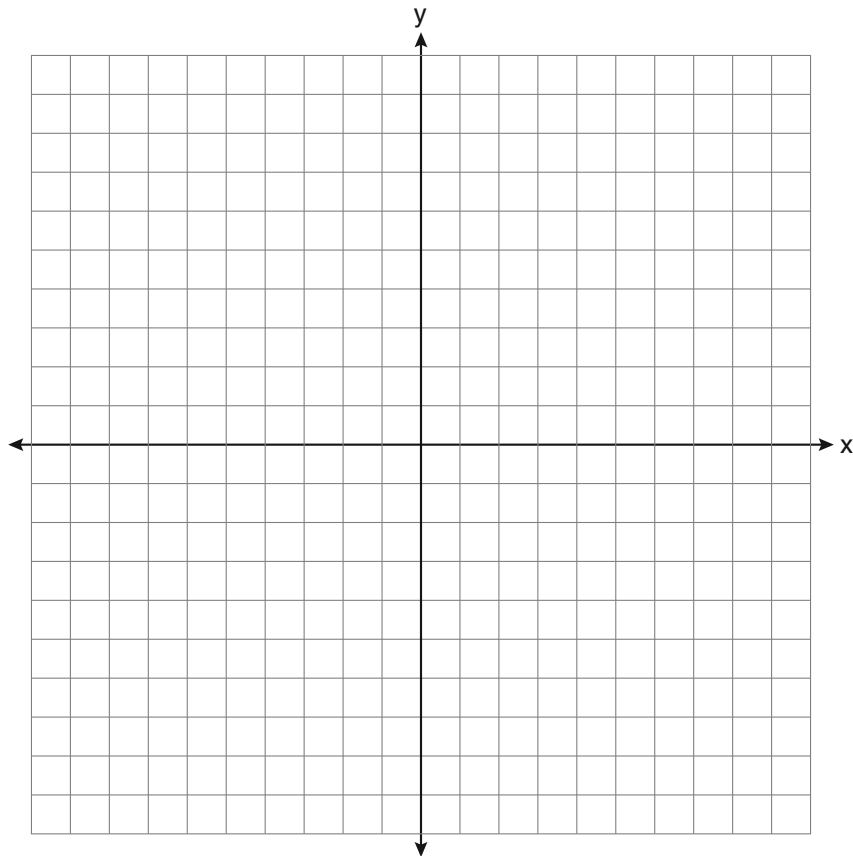
**3.**

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

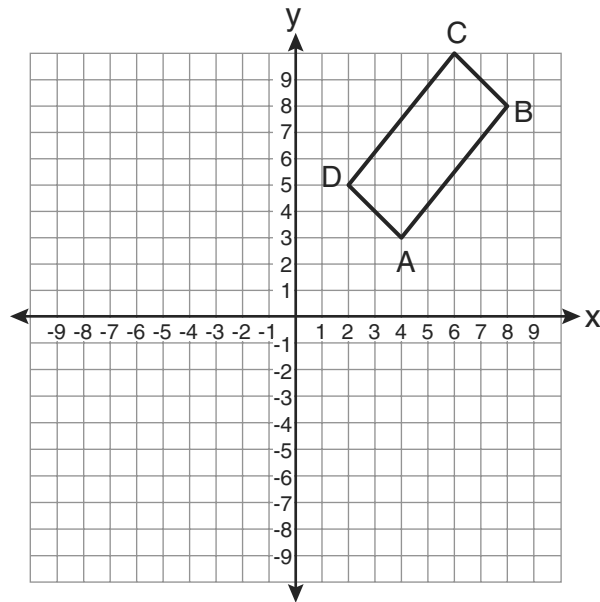
4. Triangle  $DEG$  has the coordinate  $D(1, 1)$ ,  $E(5, 1)$ , and  $G(5, 4)$ . Triangle  $DEG$  is translated  $T_{+2, -6}$ . Make a table mapping each coordinate pair into its image, then plot both triangles on the grid.



Justify that the transformation preserves distance.

5.

The rectangle  $ABCD$  shown in the diagram below will be reflected across the  $x$ -axis.



What will *not* be preserved?

- (1) slope of  $\overline{AB}$
- (2) parallelism of  $\overline{AB}$  and  $\overline{CD}$
- (3) length of  $\overline{AB}$
- (4) measure of  $\angle A$

6.

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

- (1)  $(2, 3)$
- (2)  $(-2, -3)$
- (3)  $(-2, 3)$
- (4)  $(-3, 2)$

7.

Which transformation is *not* always an isometry?

- (1) rotation
- (2) dilation
- (3) reflection
- (4) translation

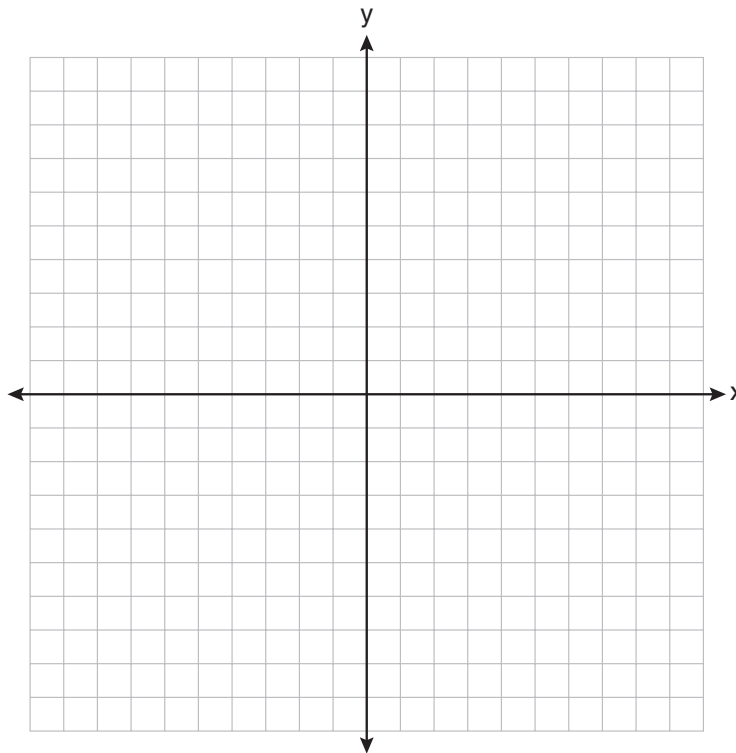
8.

**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,  $\triangle A'B'C'$ .

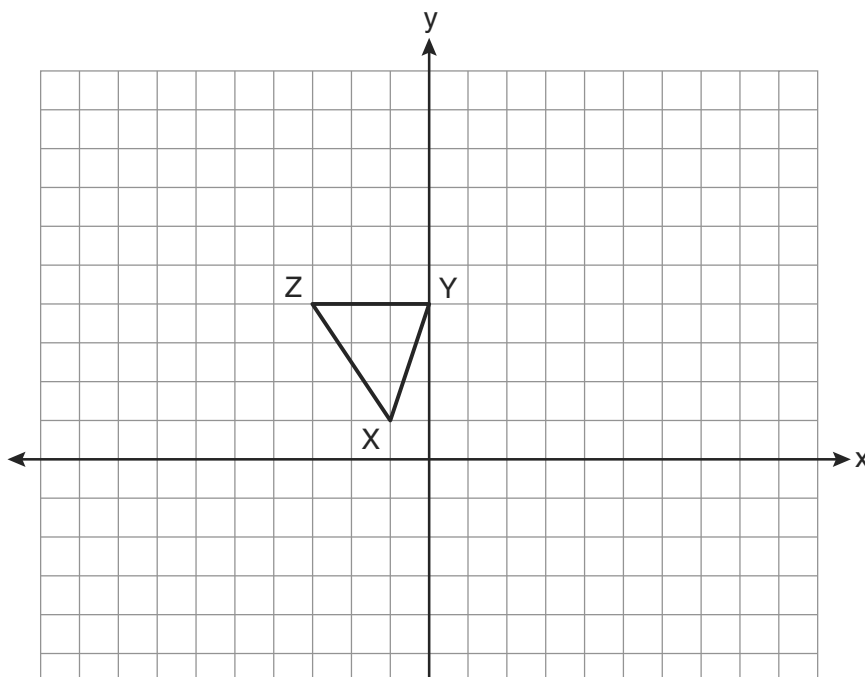
Determine the relationship between the area of  $\triangle ABC$  and the area of  $\triangle A'B'C'$ .

Justify your response.



9.

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



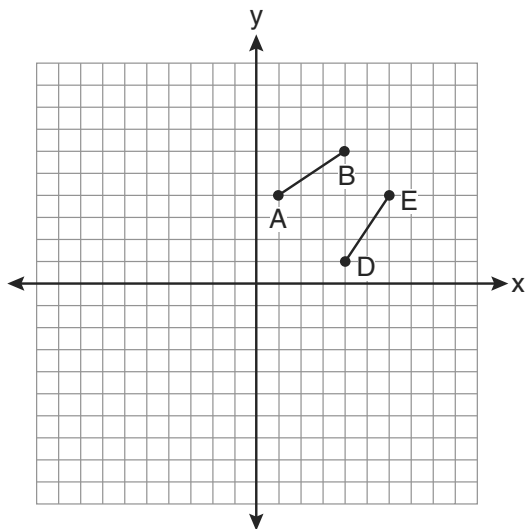
10.

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) $\overline{T'P'}$ |

**11.**

The diagram below shows  $\overline{AB}$  and  $\overline{DE}$ .



Which transformation will move  $\overline{AB}$  onto  $\overline{DE}$  such that point  $D$  is the image of point  $A$  and point  $E$  is the image of point  $B$ ?

- |                       |                    |
|-----------------------|--------------------|
| (1) $T_{3,-3}$        | (3) $R_{90^\circ}$ |
| (2) $D_{\frac{1}{2}}$ | (4) $r_{y=x}$      |

**12.**

The coordinates of point  $A$  are  $(-3a, 4b)$ . If point  $A'$  is the image of point  $A$  reflected over the line  $y = x$ , the coordinates of  $A'$  are

- |                 |                  |
|-----------------|------------------|
| (1) $(4b, -3a)$ | (3) $(-3a, -4b)$ |
| (2) $(3a, 4b)$  | (4) $(-4b, -3a)$ |

**13.**

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

- |                       |                    |
|-----------------------|--------------------|
| (1) $T_{1,3}$         | (3) $R_{90^\circ}$ |
| (2) $D_{\frac{1}{2}}$ | (4) $r_{y=x}$      |