

LESSON
9-1

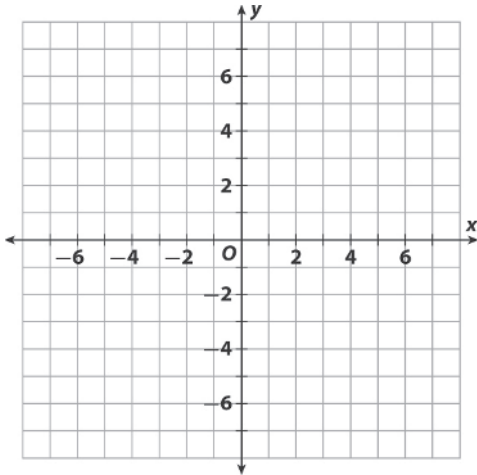
Properties of Translations

Practice and Problem Solving: C

The vertices of a figure are given. Draw the figure. Then draw its image after the described translation.

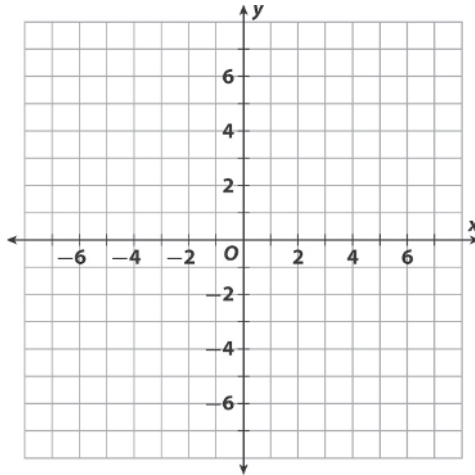
1. $R(-4, 4)$, $S(3, 4)$, $T(3, 2)$

Translate 1 unit left and 6 units down.



2. $A(-3, -7)$, $B(7, -7)$, $C(6, -3)$, $D(0, -2)$

Translate 3 units left and 7 units up.

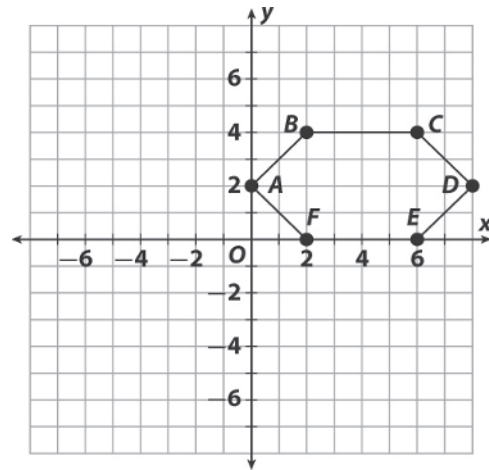


3. Figure $ABCDEF$ is given.

- a. Translate $ABCDEF$ 6 units left and 2 units down. What are the coordinates of $A'B'C'D'E'F'$?

- b. Translate $A'B'C'D'E'F'$ 4 units down. What are the coordinates of $A''B''C''D''E''F''$?

- c. Translate $A''B''C''D''E''F''$ 6 units right and 2 units up. What are the coordinates of $A'''B'''C'''D'''E'''F'''$?



- d. A pattern of a figure that repeats and covers a plane without overlapping and without gaps is called a *tessellation*. Can figure $ABCDEF$ be translated to create a tessellation? Explain.

4. A translation of each point (x, y) of a figure can be described using the coordinate notation $(x, y) \rightarrow (x + a, y + b)$, where a represents the horizontal distance moved and b represents the vertical distance moved. For triangle PQR with vertices $P(-3, -1)$, $Q(0, -1)$, and $R(-1, -3)$, find the coordinates of the vertices of the image after the translation $(x, y) \rightarrow (x - 5, y + 7)$.

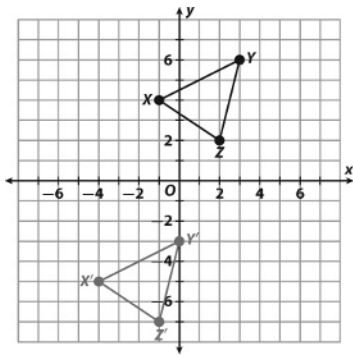
UNIT 4: Transformational Geometry

MODULE 9 Transformations and Congruence

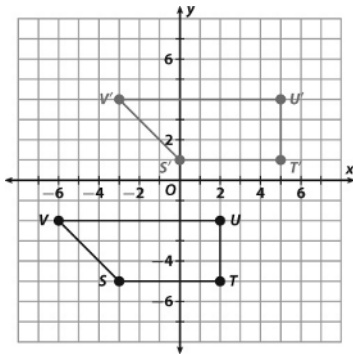
LESSON 9-1

Practice and Problem Solving: A/B

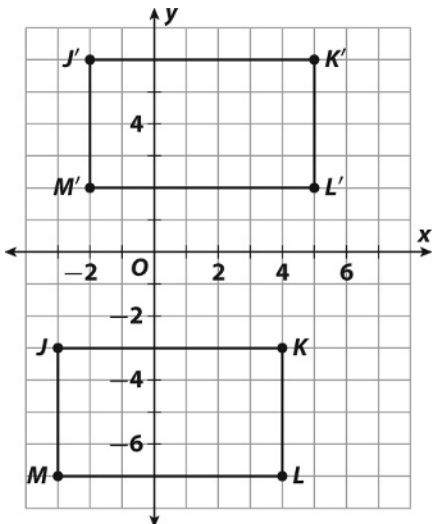
1. 5 units right and 8 units down
2. 2 units left and 9 units up
- 3.



4.



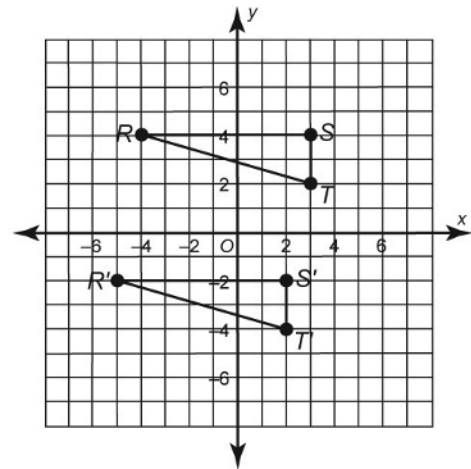
5. a.



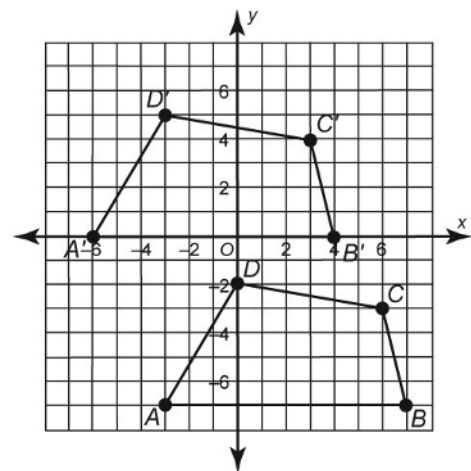
- b. Area of $JKLM = 28$ square units, area of $J'K'L'M' = 28$ square units
- c. No; the image and preimage are congruent, so they have the same size. This means that the areas are the same.

Practice and Problem Solving: C

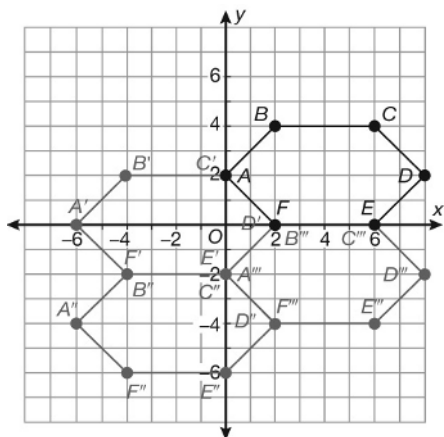
1.



2.



3.



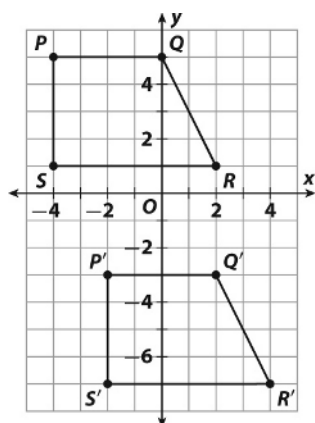
- $A'(-6, 0)$, $B'(-4, 2)$, $C'(0, 2)$, $D'(2, 0)$, $E'(0, -2)$, $F'(-4, -2)$
- $A''(-6, -4)$, $B''(-4, -2)$, $C''(0, -2)$, $D''(2, -4)$, $E''(0, -6)$, $F''(-4, -6)$
- $A'''(0, -2)$, $B'''(2, 0)$, $C'''(6, 0)$, $D'''(8, -2)$, $E'''(6, -4)$, $F'''(2, -4)$
- Yes; the figures cover the plane without overlapping and without any gaps.

4. $P(-8, 6)$, $Q(-5, 6)$, $R(-6, 4)$

Practice and Problem Solving: D

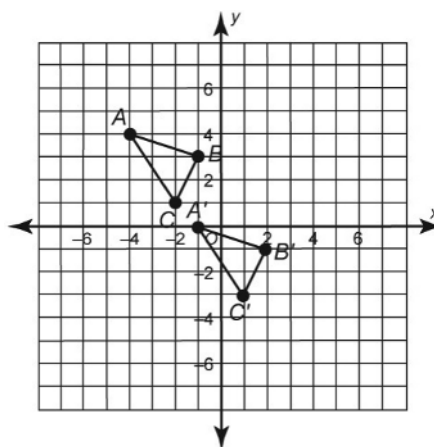
- $A(-7, -2)$
- $B(6, 6)$
- $C(-3, -5)$
- side AB'
- angle C'
- The translation moves the triangle 9 units left and 6 units down.
- a. The point is translated 2 units right and 8 units down.

b.

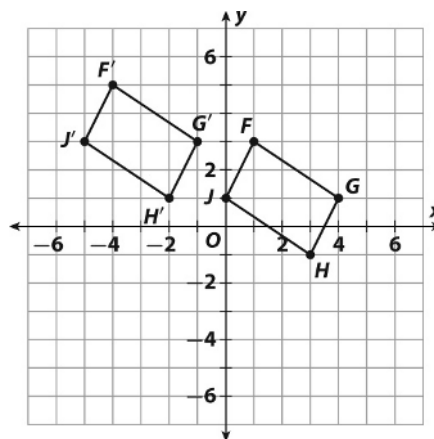


c. They are congruent.

8.

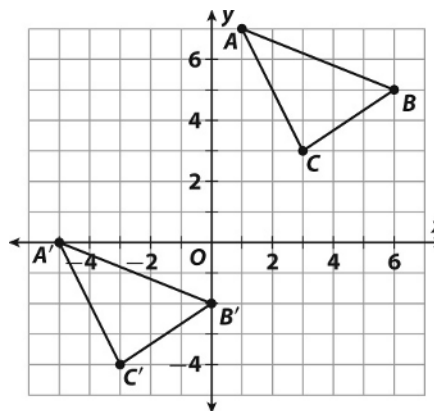


9.



Reteach

1.



2.

