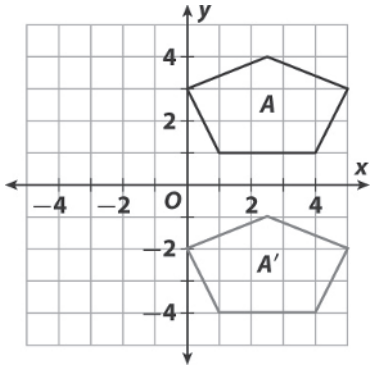
Name _____ Date _____ Class _____

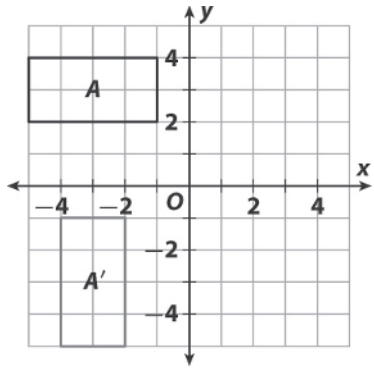
LESSON 9-4

Algebraic Representations of Transformations

Practice and Problem Solving: A/B

Write an algebraic rule to describe each transformation of figure *A* to figure *A′*. Then describe the transformation.

1. 

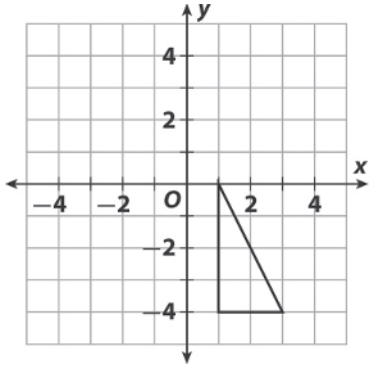
2. 

_____ _____

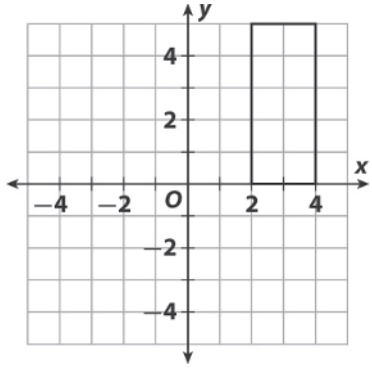
_____ _____

Use the given rule to graph the image of each figure. Then describe the transformation.

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



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



_____ _____

Solve.

5. Triangle *ABC* has vertices *A*(2, −1), *B*(−3, 0), and *C*(−1, 4). Find the vertices of the image of triangle *ABC* after a translation of 2 units up.

_____

6. Triangle *LMN* has *L* at (1, −1) and *M* at (2, 3). Triangle *L′M′N′* has *L′* at (−1, −1) and *M′* is at (3, −2). Describe the transformation.

_____

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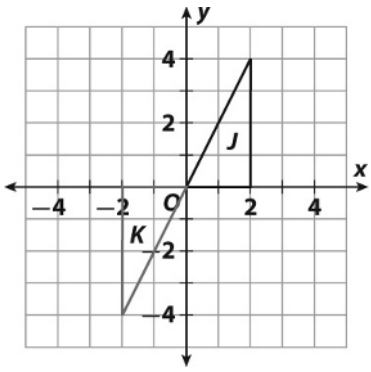
Practice and Problem Solving: D

1. *B*
2. *C*
3. *B*
4. *D*
5. 2 cm and 4 cm
6. I
7. I
8. III
9. II
10. 

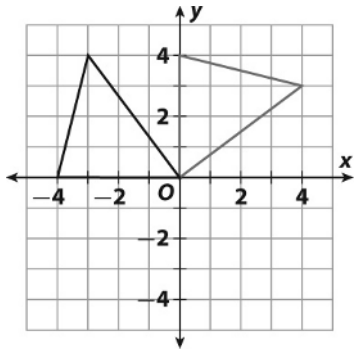
11. The image will be the same as triangle *K*.

Reteach

1. *D*
2. *B*
3. *C*
4. *B*
5. 3 cm, 4 cm, 5 cm
6. Sample answer: A rotation of 180° turns the figure a half-turn and will be the same whether turned clockwise or counterclockwise.

Reading Strategies

1. Check student's answers. Sample answer: One side will go from the *x*-axis to the *y*-axis maintaining a length of 4. Vertex at (–3, 4) will go to (4, 3)

2. 

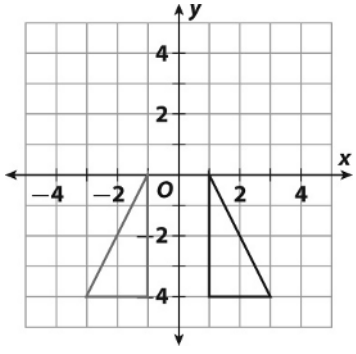
Success for English Learners

1. 90° counterclockwise or 270° clockwise
2. 90° clockwise or 270° counterclockwise

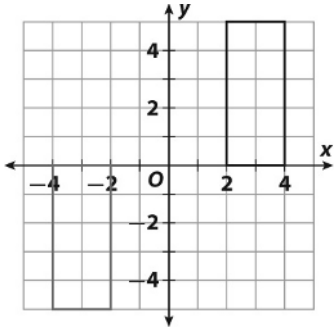
LESSON 9-4

Practice and Problem Solving: A/B

1. $(x, y) \rightarrow (x, y-5)$; translation down 5 units
2. $(x, y) \rightarrow (-y, x)$; rotation 90° counterclockwise
3. reflection over the *y*-axis



4. rotation of 180°



5. $A'(2, 1)$, $B'(-3, 2)$, $C'(-1, 6)$
6. a 90° clockwise rotation

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