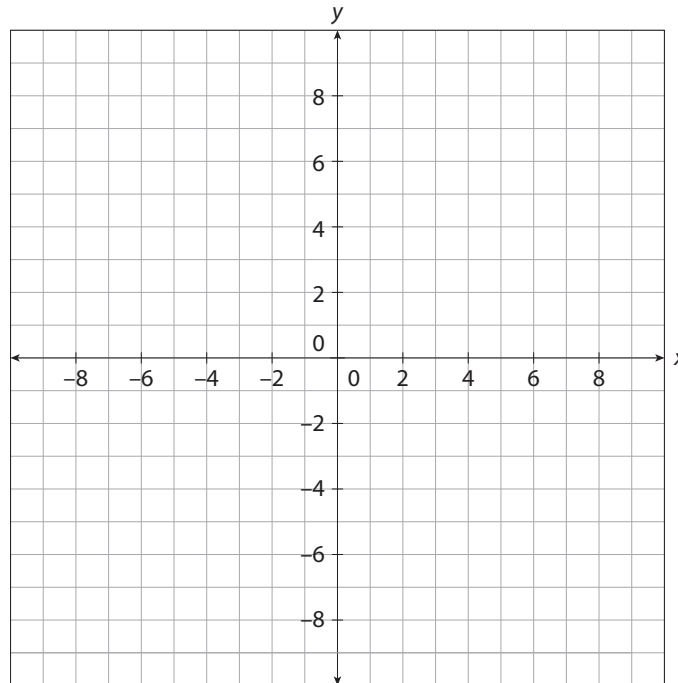


**UNIT 4 • SIMILARITY AND CONGRUENCE**

G–CO.6

**Lesson 4.1: Transformations and Rigid Motions****Practice 4.1: Transformations and Rigid Motions****B**

Parallelogram  $ABCD$  has coordinates  $A(-6, 1)$ ,  $B(-4, 3)$ ,  $C(-1, 3)$ , and  $D(-3, 1)$ . Graph the parallelogram, then use the graph to solve problems 1–9.



1. Predict how the side lengths, perimeter, area, and angle measures will change if you perform a translation of 4 units right and 2 units down.
2. Perform the transformation  $T(x, y) = (x + 4, y - 2)$  to parallelogram  $ABCD$ . Compare the outcome to your predictions in problem 1. Show evidence of what changed or stayed the same.
3. Predict how the side lengths, perimeter, area, and angle measures will change if you perform a reflection about the  $x$ -axis.
4. Perform the reflection about the  $x$ -axis to parallelogram  $ABCD$ . Compare the outcome to your predictions. Show evidence of what changed or stayed the same.
5. Predict how the side lengths, perimeter, area, and angle measures will change if you perform a  $270^\circ$  counterclockwise rotation about the origin.

**continued**

## UNIT 4 • SIMILARITY AND CONGRUENCE

G-CO.6

## Lesson 4.1: Transformations and Rigid Motions

6. Perform the rotation about the origin to parallelogram  $ABCD$ . Compare the outcome to your predictions. Show evidence of what changed or stayed the same.
7. Predict how the side lengths, perimeter, area, and angle measures will change if you perform a dilation with a scale factor of 2.
8. Perform the dilation to parallelogram  $ABCD$ . Compare the outcome to your predictions. Show evidence of what changed or stayed the same.
9. Compare and contrast your evidence from problems 1 to 8. Make a generalization about which transformations maintained size and shape. What other generalizations can you make about the transformations that did not maintain the parallelogram's size or shape?

Use the following information to solve problem 10.

10. Graph trapezoids  $ABCD$  and  $EFGH$ . The coordinates for  $ABCD$  are  $A(1, 1)$ ,  $B(1, 3)$ ,  $C(4, 3)$ , and  $D(5, 1)$ , and the coordinates for  $EFGH$  are  $E(-1, -1)$ ,  $F(-1, -3)$ ,  $G(-4, -3)$ , and  $H(-5, -1)$ . Use your graph to determine whether the images are congruent. If they are, describe the sequence of transformations that would have the images coincide.

