

6

Family Letter

Dear Parent or Guardian:

We see geometric patterns everywhere. The tile in your house might be a pattern of squares, or you might find a series of parallel lines in the fabric of your favorite chair. Knowing how to apply geometric concepts can help us make proportional drawings, design room layouts, and construct buildings.

In **Chapter 6, Geometry and Spatial Reasoning**, your child will learn about line and angle relationships, polygons, reflections, symmetry, congruency, and translations. Your child will also learn to solve problems by using logical thought. In the study of this chapter, your child will complete a variety of daily classroom assignments and activities and possibly produce a chapter project.

By signing this letter and returning it with your child, you agree to encourage your child by getting involved. Enclosed is an activity you can do with your child that practices how the math we will be learning in Chapter 6 might be tested. You may also wish to log on to www.msmath3.com for self-check quizzes and other study help. If you have any questions or comments, feel free to contact me at school.

Sincerely,

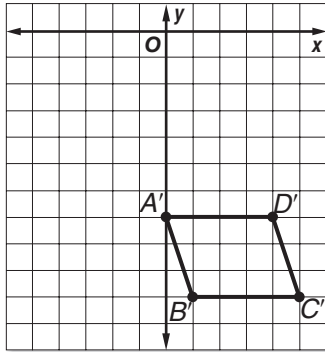
Signature of Parent or Guardian _____ Date _____

6 Family Activity

State Test Practice

Fold the page along the dashed line. Work each problem on another piece of paper. Then unfold the page to check your work.

1. The figure shown below has been translated 4 units down and 5 units to the right from its original location.



Where was the original quadrilateral?

- A $A(-4, -3); B(-4, -6); C(0, -6); D(-1, -3)$
- B $A(-5, -4); B(-4, -4); C(0, -7); D(-1, -7)$
- C $A(-5, -3); B(-4, -6); C(0, -6); D(-1, -3)$
- D $A(-4, -4); B(0, -4); C(1, -7); D(-3, -7)$

Fold here

Solution

1. *Hint: Moving an object to the right or up is a positive translation. Moving an object down or left is a negative translation.*

Do the opposite movement to find the original location. That is, move 4 units up and 5 units left.

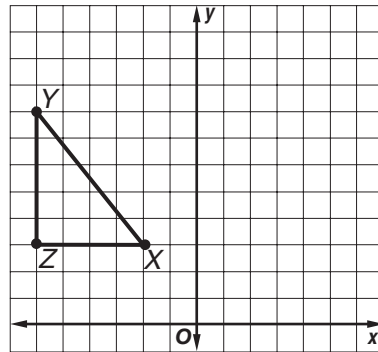
4 units up means add 4 to the y -coordinate and 5 units left means to subtract 5 units from the x -coordinate. Look at point A.

$$(0, -7) \rightarrow (0 - 5, -7 + 4) \\ (-5, -3)$$

Check the other vertices, but choice C is the only one with these coordinates for A.

The answer is C.

2. The following shape is to be reflected over the y -axis.



Where will the vertices of the reflection be located?

- A $X'(2, 3); Y'(6, 8); Z'(6, 3)$
- B $X'(2, 3); Y'(6, 3); Z'(6, 8)$
- C $X'(-2, -3); Y'(-6, -8); Z'(-6, -3)$
- D $X'(-2, -8); Y'(-6, -3); Z'(-6, -8)$

Solution

2. *Hint: A reflection should look like the mirror image of the original. The two images (the original and the reflected) should be equally spaced from the line of reflection.*

Since we are reflecting over the y -axis, the y -coordinates will not change (The image will not move up or down). The x -coordinates will be the opposite (or negative) of their current value so that they are on the other side of the y -axis.

Point X' : $(2, 3)$
 Point Y' : $(6, 8)$
 Point Z' : $(6, 3)$

The answer is A.