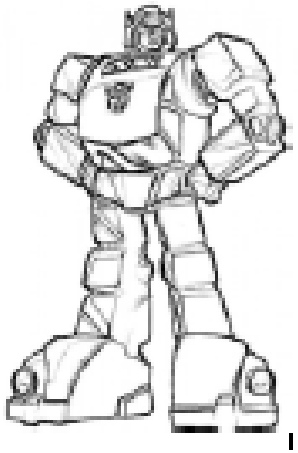
Lesson 8.1 Translations Day 1

Math Warm Up:

*Write homework in agenda for entire week

*Tape in graphic organizer

*Cut out the following images



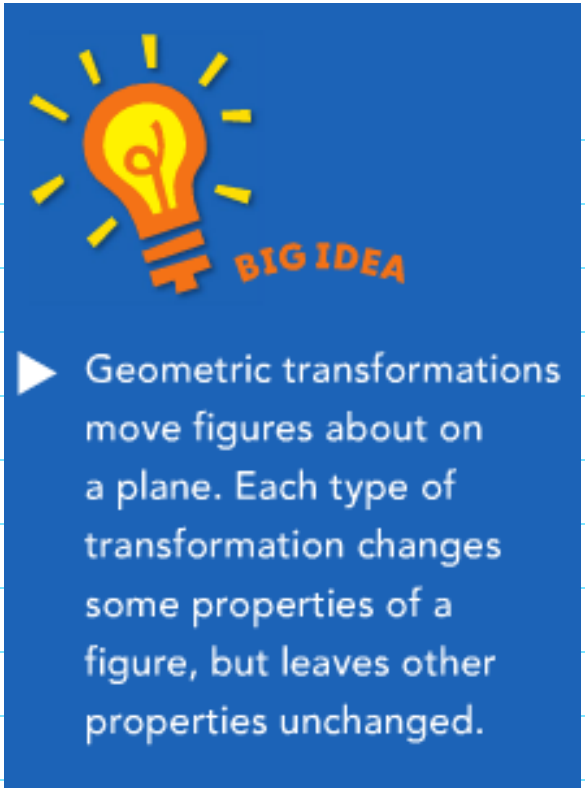
Lesson 8.1 Translations Day 1

Objective

TSW understand concept of translations

*drawing images after translation

*find coordinates of points after translation



Common Core State Standards

8G1 Verify experimentally the properties of rotations, reflections, and translations.

8G1 a Lines are taken to lines, and line segments to line segments of the same length.

Mathematical Practices *MP3 Construct arguments MP 4 Model Mathematics MP5 Use tools strategically*

Lesson 8.1 Translations Day 1

Use Glossary to write definition of Vocabulary

Transformation-

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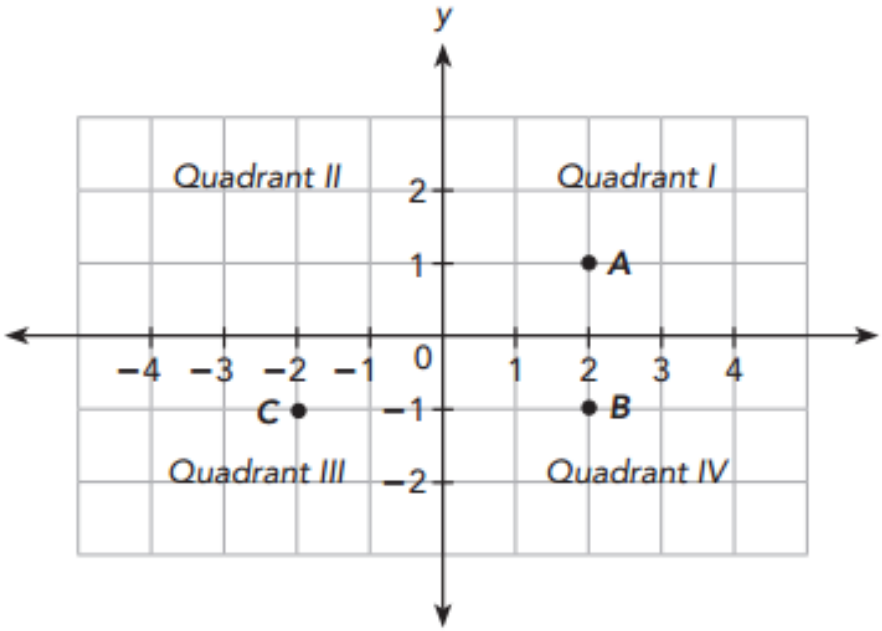
Use Glossary to write definition of Vocabulary

Transformation- A Function that maps each point to its corresponding point on a plane



Lesson 8.1 Translations Day 1

Translation

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Translation

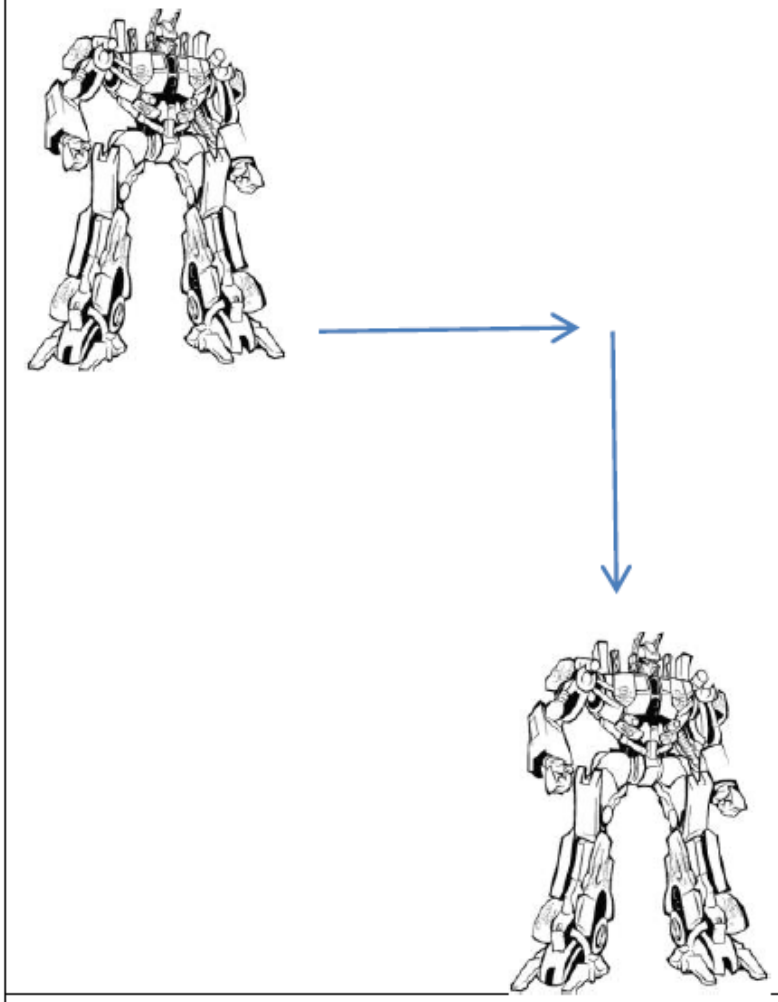

Figure is moved to another position on a plane with same length and direction of all points (slide)

Translations can be vertical, horizontal, or a combination of vertical and horizontal movements.

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Reflection

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Reflection 	Produces a mirror image of the figure (flip)

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Rotation 	

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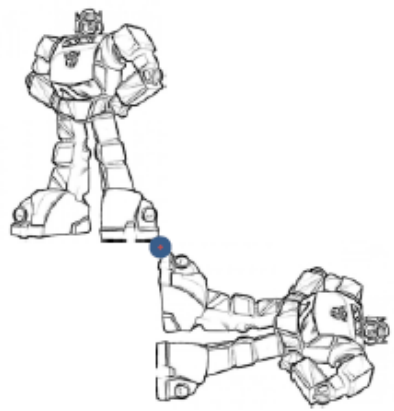
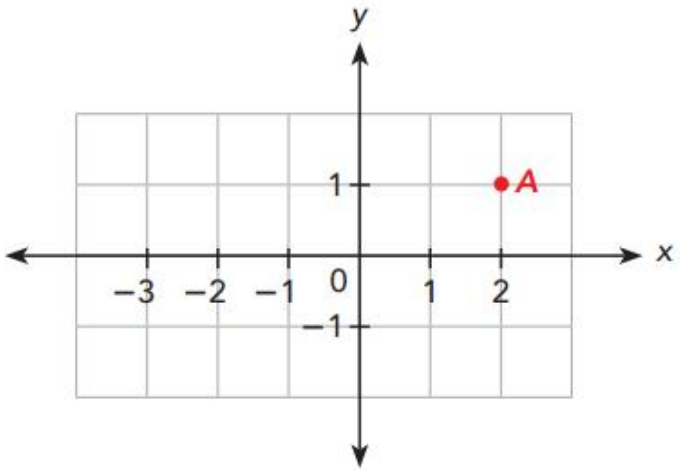
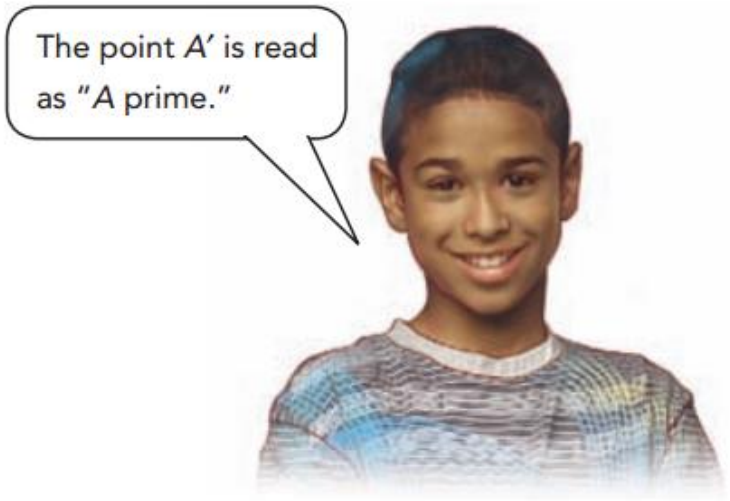
Rotation 	A figure is turned around a certain number of degrees around a fixed point or line (turn)

Lesson 8.1 Translations Day 1

Example 1 Translate a point.

Marcus walks from a point A (2, 1) in a campsite to point A', as described by a translation of 3 units to the left and 2 units down. Mark the position of A' on the coordinate plane.





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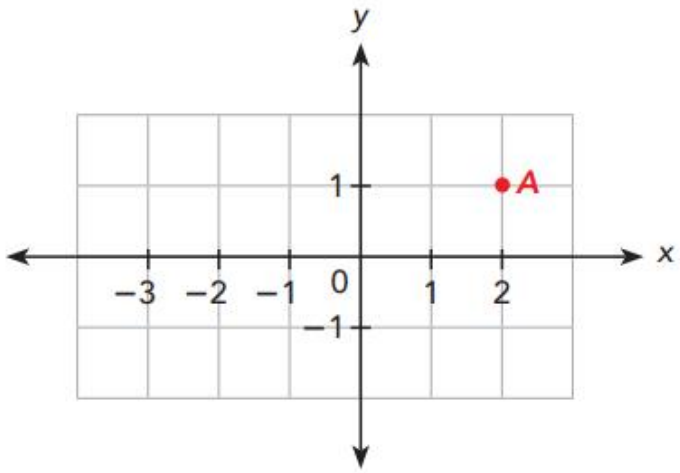
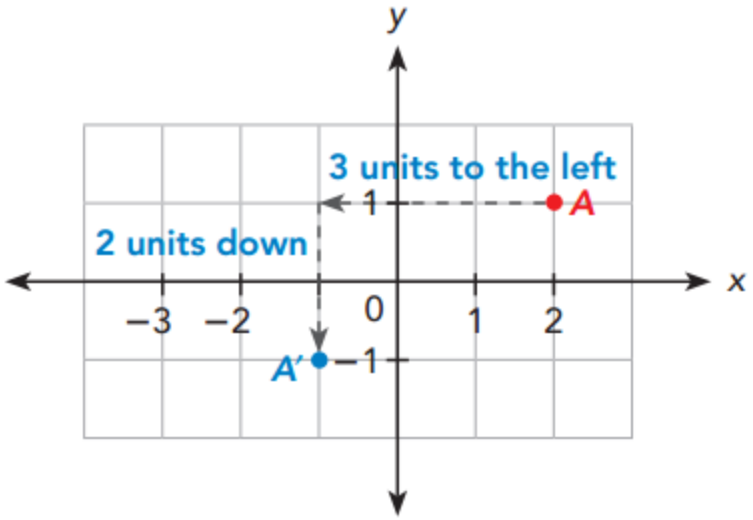


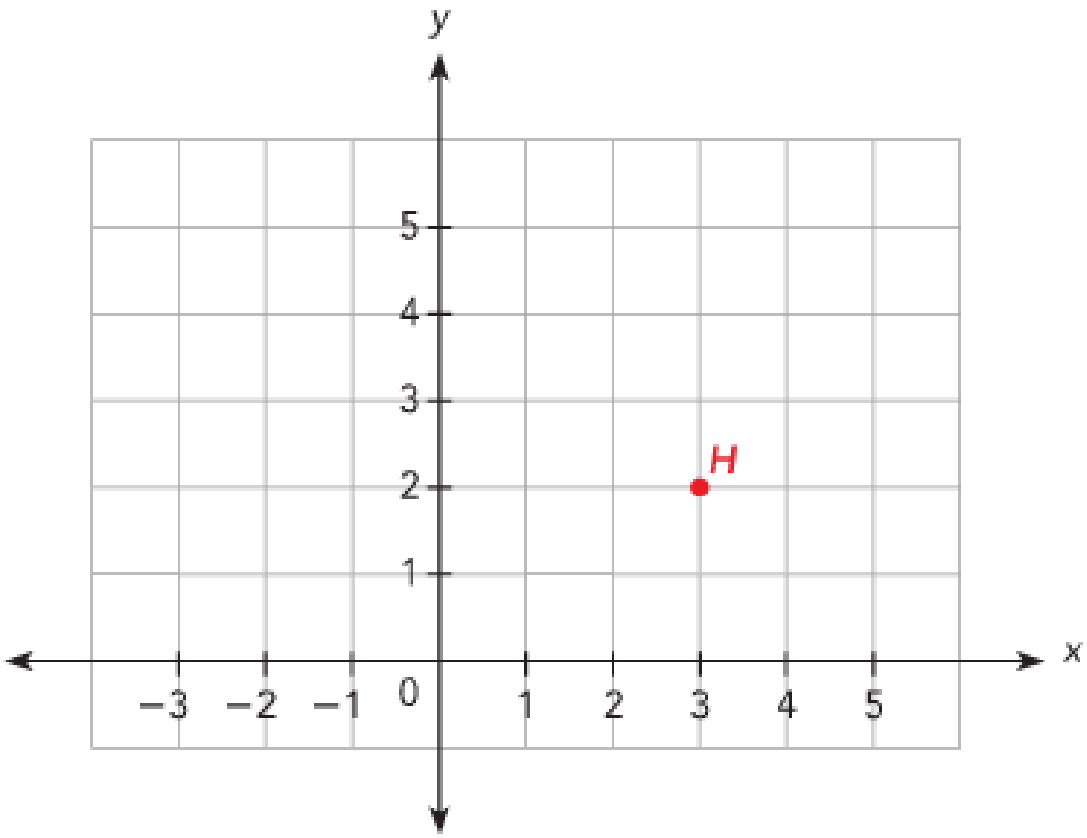
Solution



Guided Practice

Copy and complete on graph paper.

1 Abigail jogs from point H (3, 2) in a park to point H', as described by a translation of 5 units to the left and 3 units up. Mark the position of H' on the coordinate plane.



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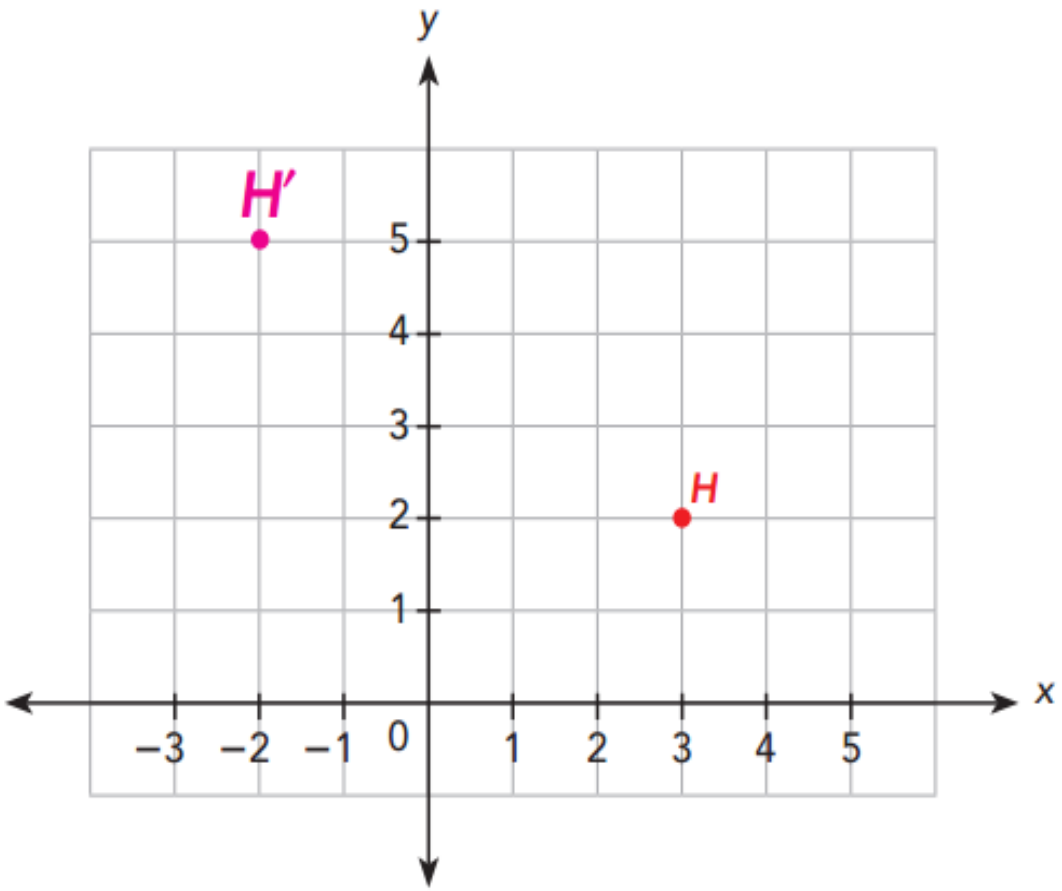
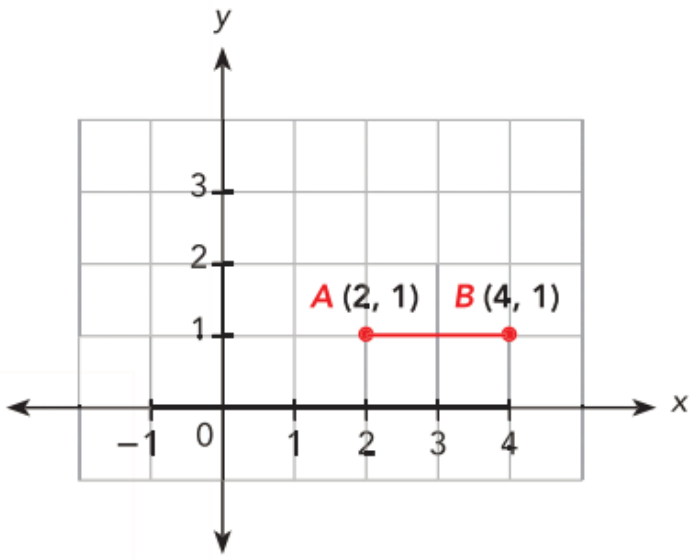


Lesson 8.1 Translations Day 1

Example 2 Translate a line segment.

Ronald set up his tent. The position of one side of the base of the tent is represented by $\overline{AB}$. Due to strong wind, he relocated his tent to $\overline{A'B'}$. This movement is described by the translation 3 units to the left and 2 units up. Draw and label $\overline{A'B'}$ on the coordinate plane.



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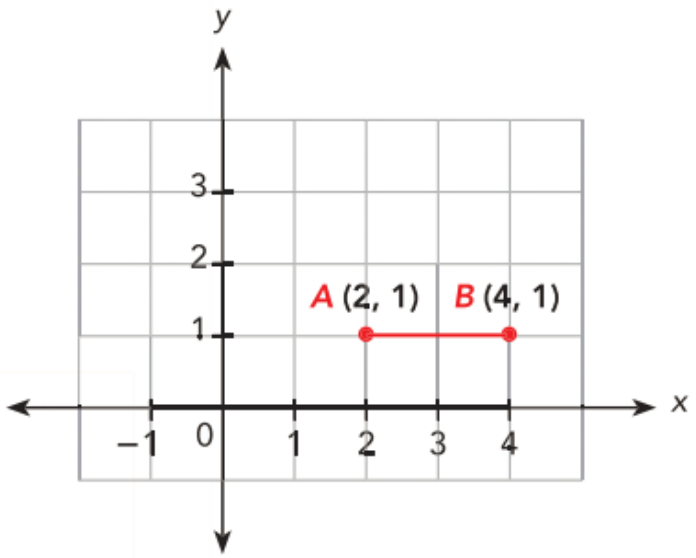
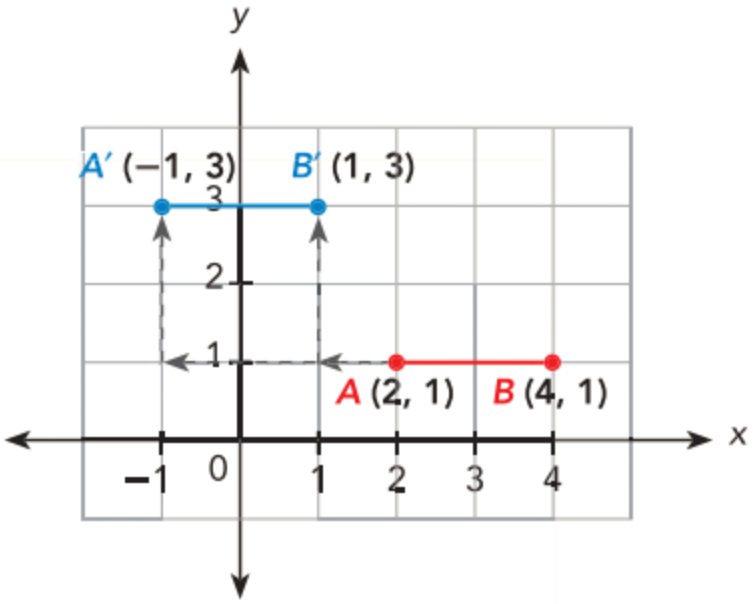


Solution

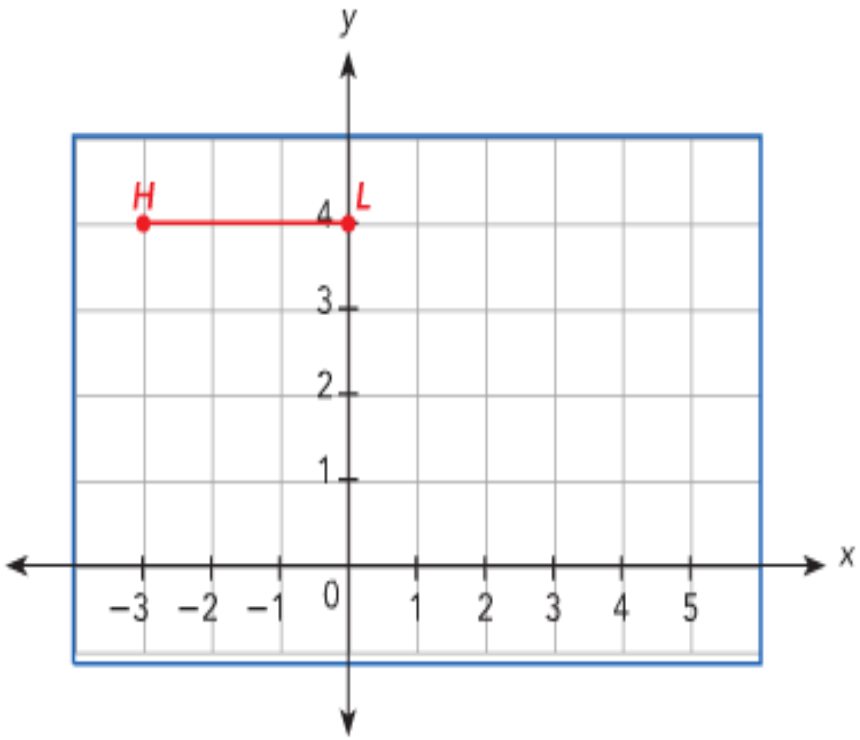


Lesson 8.1 Translations Day 1

Guided Practice

Copy and complete on graph paper.

2 Mr. McBride wanted to set up a barbeque pit in his backyard. He had to move a swing set represented by $\overline{HL}$. He decided to move the swing set by a translation of 4 units to the right and 2 units down to $\overline{H'L'}$. Draw and label $\overline{H'L'}$ on the coordinate plane.



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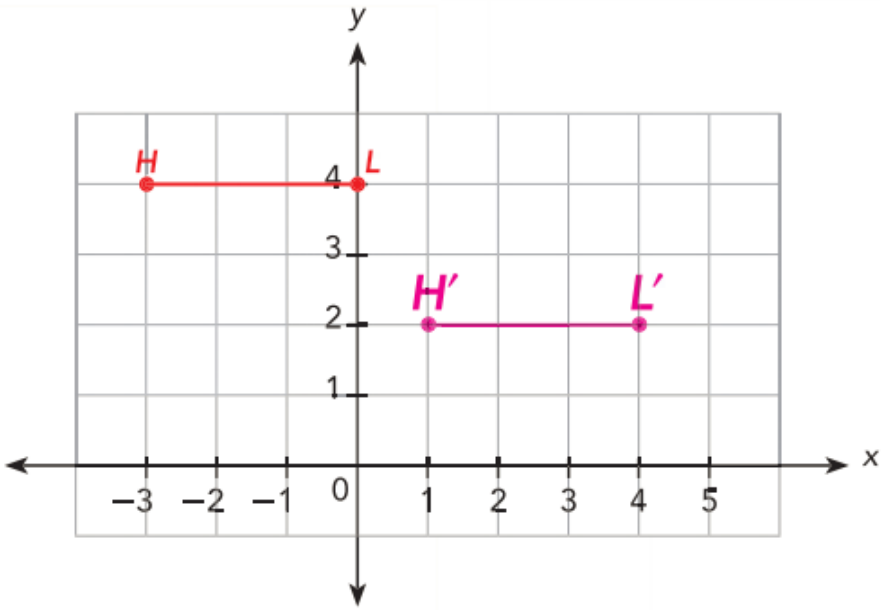

Example 3 Translate polygons.

Ms. Milano is a builder planning to construct three houses on three nearby lots. She has located the position of the first house on a map of the lots, and plans to locate the other two houses, $A'B'C'D'$ and $A''B''C''D''$, using the following translations.

a) $A'B'C'D'$ is the image of $ABCD$ under the translation: 5 units to the left, 1 unit down.

b) $A''B''C''D''$ is the image of $ABCD$ under the translation: 4 units down.

Copy the diagram, and draw and label $A'B'C'D'$ and $A''B''C''D''$ on the coordinate plane.

Math Note

The phrase "under a translation" is a mathematician's way of saying "using a translation."

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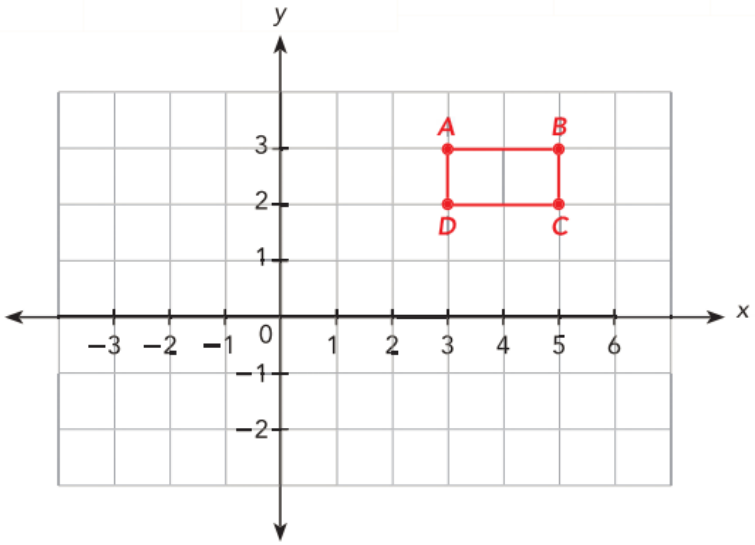

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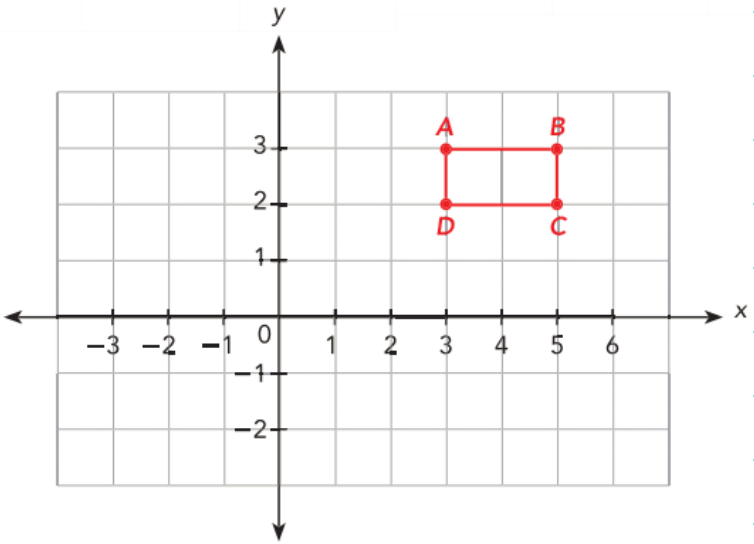

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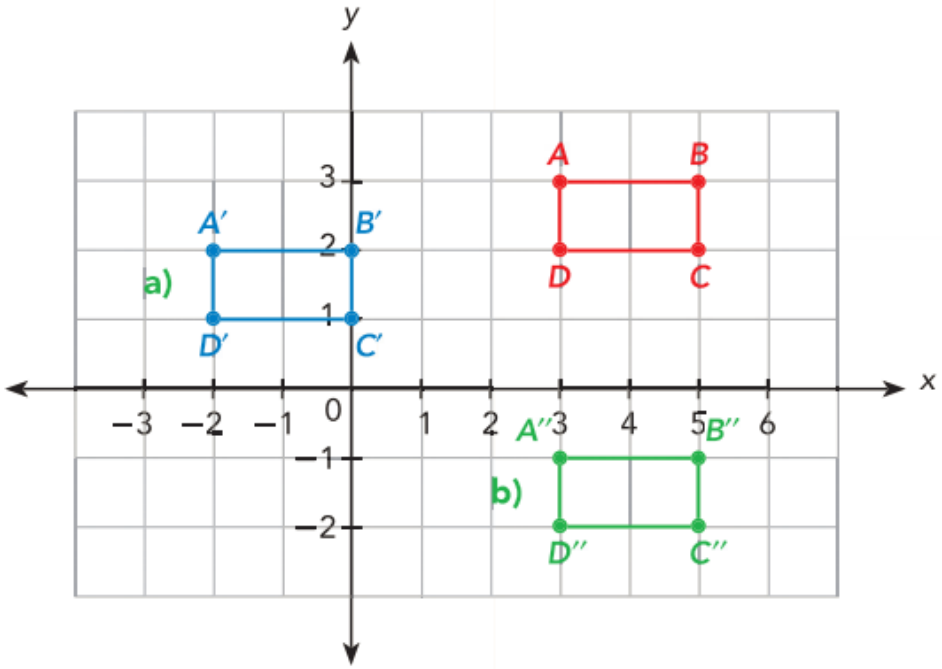

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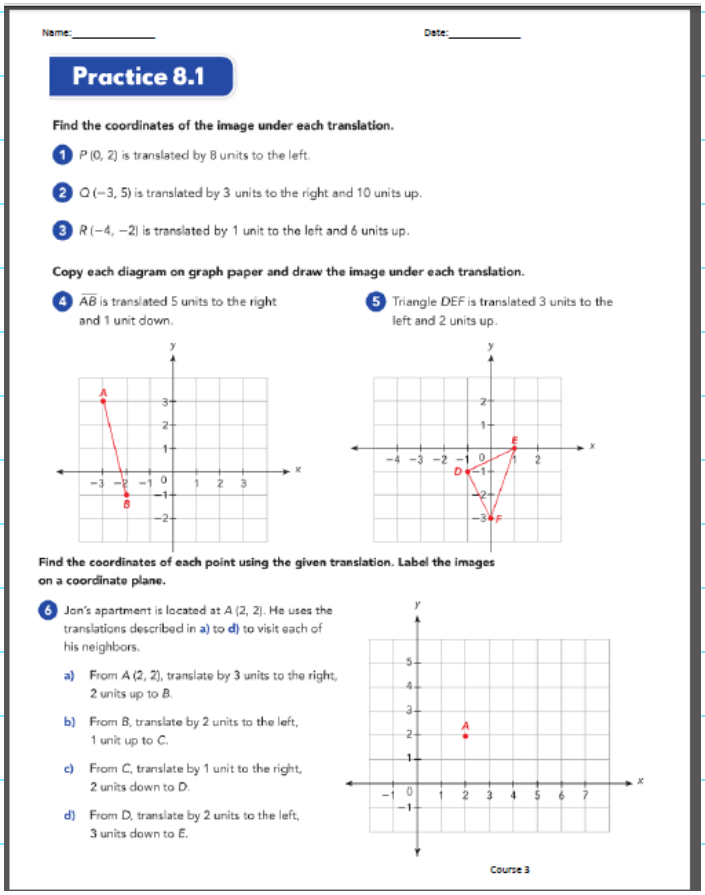
Practice 8.1 #1-4 & 6



Name:_____ Date:_____

Practice 8.1

Find the coordinates of the image under each translation.

1. $P(0, 2)$ is translated by 8 units to the left.
2. $Q(-3, 5)$ is translated by 3 units to the right and 10 units up.
3. $R(-4, -2)$ is translated by 1 unit to the left and 6 units up.

Copy each diagram on graph paper and draw the image under each translation.

4. $\overline{AB}$ is translated 5 units to the right and 1 unit down.
5. Triangle DEF is translated 3 units to the left and 2 units up.

Find the coordinates of each point using the given translation. Label the images on a coordinate plane.

6. Jon's apartment is located at $A(2, 2)$. He uses the translations described in a) to d) to visit each of his neighbors.
   a) From $A(2, 2)$, translate by 3 units to the right, 2 units up to B.
   b) From B, translate by 2 units to the left, 1 unit up to C.
   c) From C, translate by 1 unit to the right, 2 units down to D.
   d) From D, translate by 2 units to the left, 3 units down to E.

Course 3

Challenge-

*#9-11 provide challenge

*Solve created equations

"Pick a Snowflake"

*BuzzMath

Lesson Check #1-can translate a point and a segment

Lesson 8.1 Translations Day 1

Ticket Out the Door- Connect, Extend, Challenge

1. How are the ideas and information presented CONNECTED to what you already knew?

2. What new ideas did you get that EXTENDED or pushed your thinking in new directions?

3. What is still CHALLENGING or confusing for you to get your mind around? What questions, wonderings or puzzles do you now have?