

8.1 Translations

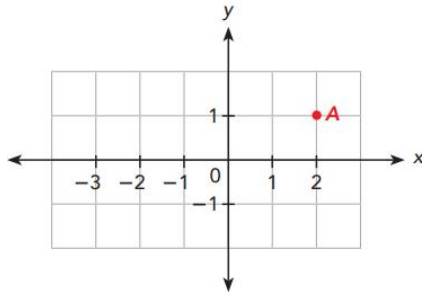
TSW understand concepts of translation by

*draw images after translations

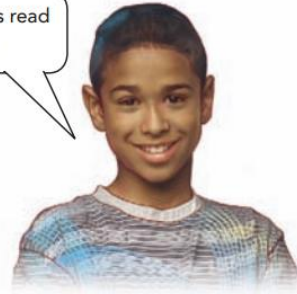
*find the coordinates of points after translations

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.



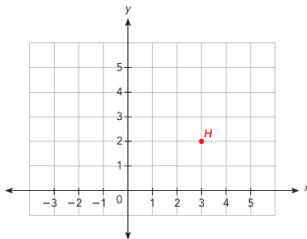
The point A' is read as "A prime."



Guided Practice

Copy and complete on graph paper.

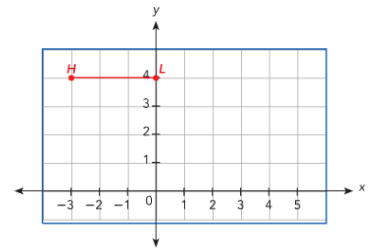
- 1 Abigail jogs from point $H(3, 2)$ in a park to point H' , as described by a translation of 5 units to the left and 3 units up. Mark the position of H' on the coordinate plane.



Guided Practice

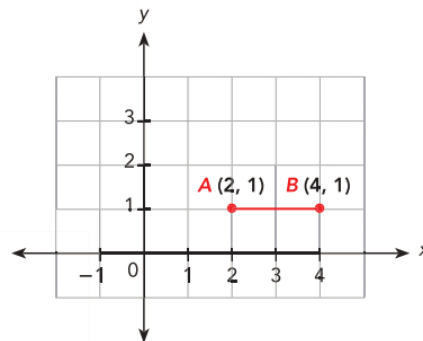
Copy and complete on graph paper.

- 2 Mr. McBride wanted to set up a barbecue 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.



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.



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.

Math Note

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

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

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

