

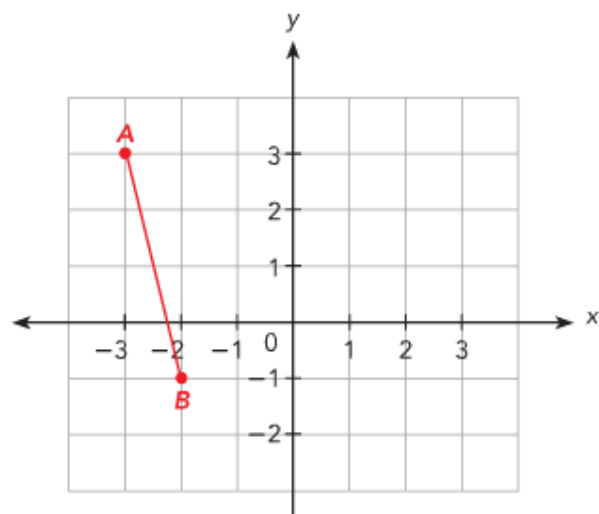
Practice 8.1

Find the coordinates of the image under each translation.

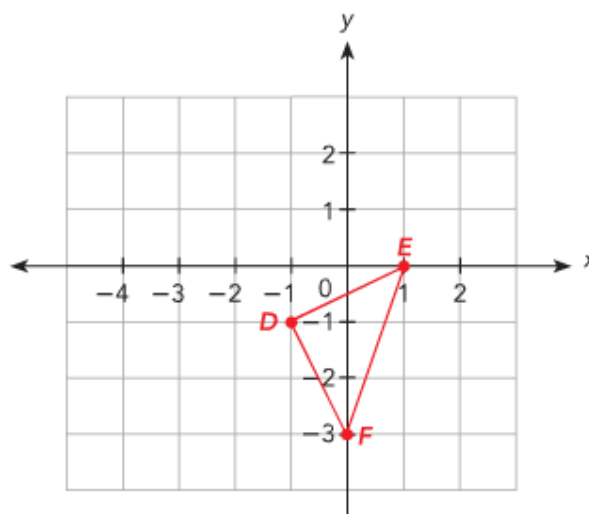
- $P(0, 2)$ is translated by 8 units to the left.
- $Q(-3, 5)$ is translated by 3 units to the right and 10 units up.
- $R(-4, -2)$ is translated by 1 unit to the left and 6 units up.

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

- \overline{AB} is translated 5 units to the right and 1 unit down.

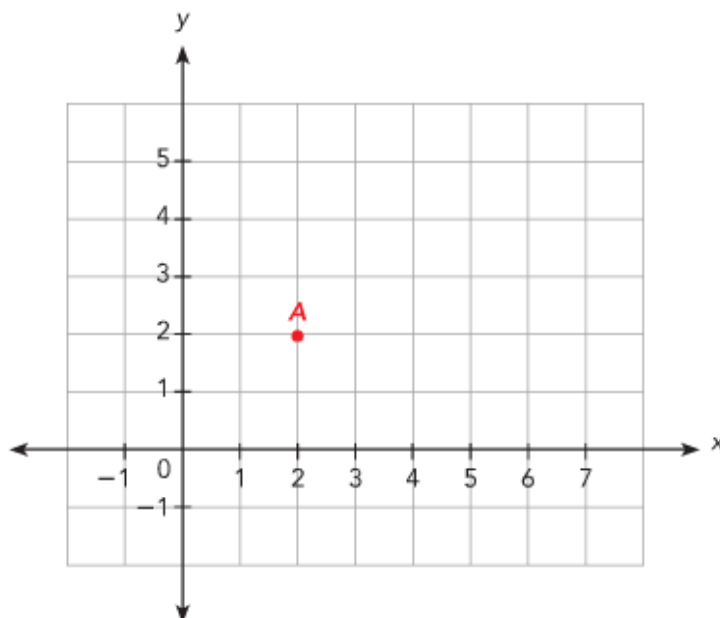


- Triangle DEF is translated 3 units to the left and 2 units up.



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

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



Solve. Show your work.

- 7 The base of a box is at $ABCD$. It is moved by a translation to a new position $A'B'C'D'$. The table shows the position to which A was mapped. Find the new position of the other three vertices of the base. Copy and complete the table.

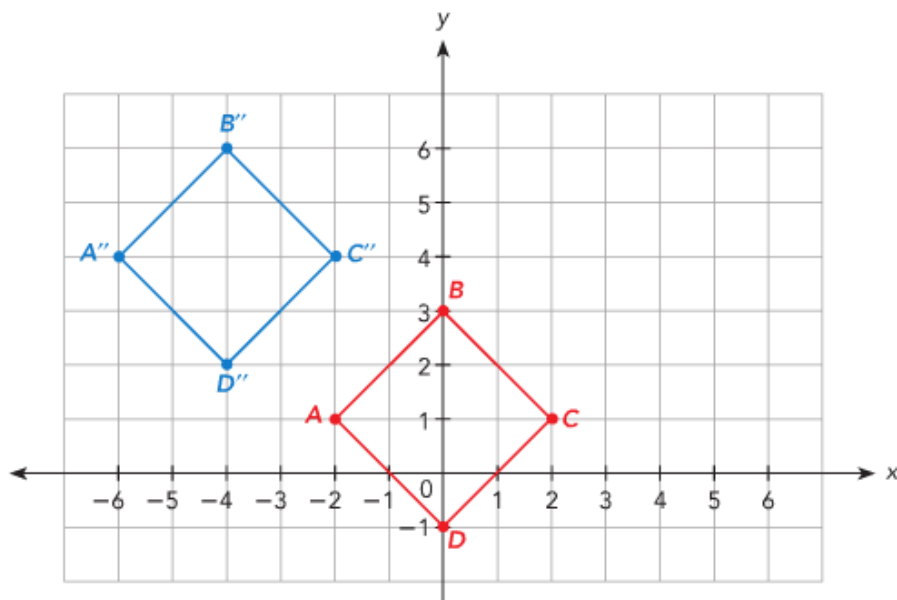
Original Point	$A(4, 1)$	$B(6, 1)$	$C(6, -1)$	$D(4, -1)$
Is Mapped Onto	$A'(0, -2)$	$B'(\underline{\quad}, \underline{\quad})$	$C'(\underline{\quad}, \underline{\quad})$	$D'(\underline{\quad}, \underline{\quad})$

- 8 A crane moved a cargo pallet from $ABCD$ to other positions on the ship's deck.

- a) Find the coordinates of $A'B'C'D'$ under a translation that moves each point (p, q) to $(p + 4, q + 1)$. Copy and complete the table. Draw $A'B'C'D'$ on a graph paper.

Original Point	$A(-2, 1)$	$B(0, 3)$	$C(2, 1)$	$D(0, -1)$
Is Mapped Onto	$A'(\underline{\quad}, \underline{\quad})$	$B'(\underline{\quad}, \underline{\quad})$	$C'(\underline{\quad}, \underline{\quad})$	$D'(\underline{\quad}, \underline{\quad})$

- b) The position of $A''B''C''D''$ is shown on the coordinate plane. State the new coordinates of any point (x, y) under the translation from $ABCD$ to $A''B''C''D''$.



- 9 A computer program T instructs a robotic arm to move an object on the coordinate plane 2 units to the right and 3 units down. The object at point P is translated by T to point P' . Find the coordinates of P if point P' is $(3, 3)$.
- 10 A line has the equation $y = x$. It is translated up by 3 units. What is the equation of the new line? How do the slopes of the line and its image compare?
- 11 In a wallpaper pattern, a vertical stripe at $x = -1$ is copied by moving it to $x = 1$. Describe the translation of this stripe both verbally and algebraically.