

### 3.7 Translation

Objective: Identify and use translations.

A slide is called a translation.

preimage-original

The new figure after the translation is the image.

(In the book, the original figure is given in blue and the image is shown in red.)

A translation is a type of transformation. A transformation is an operations that maps, or moves, a figure onto an image.

Checkpoint on the bottom of page 152.

1. no, because it is flipped
2. yes
3. no, because it is turned



When labeling points on the image, write the prime symbol (') next to the letter used in the original figure.

$$\triangle ABC \rightarrow \triangle A'B'C'$$

In a translation, segments connecting points in the original figure to their corresponding points in the image are congruent and parallel.

Translations in a coordinate plane can also be described using the following coordinate notation:

$$(x, y) \rightarrow (x \pm a, y \pm b)$$

Each point shifts  $a$  units horizontally (left or right) and  $b$  units vertically (up or down). When moving right or up, add the number of units. When moving down or left, subtract the number of units.

Checkpoint at the top of page 154.

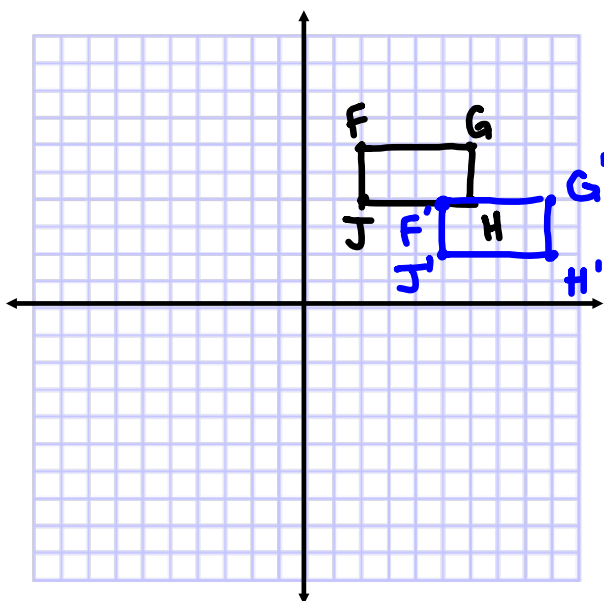
4. down 4, left 3

$$(x, y) \rightarrow (x - 3, y - 4)$$

Checkpoint at the bottom of page 154.

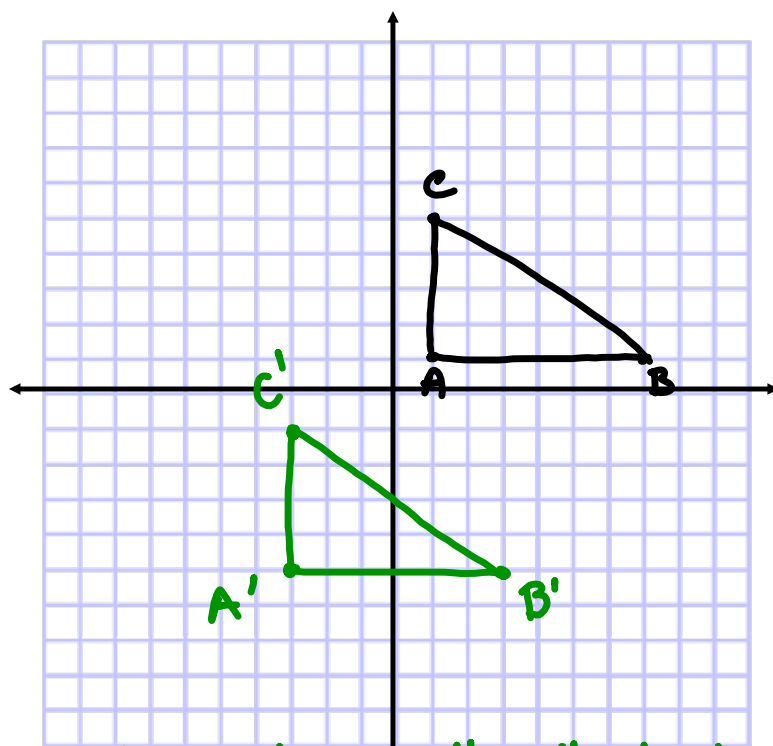
5. left 5, up 2

$$(x, y) \rightarrow (x - 5, y + 2)$$



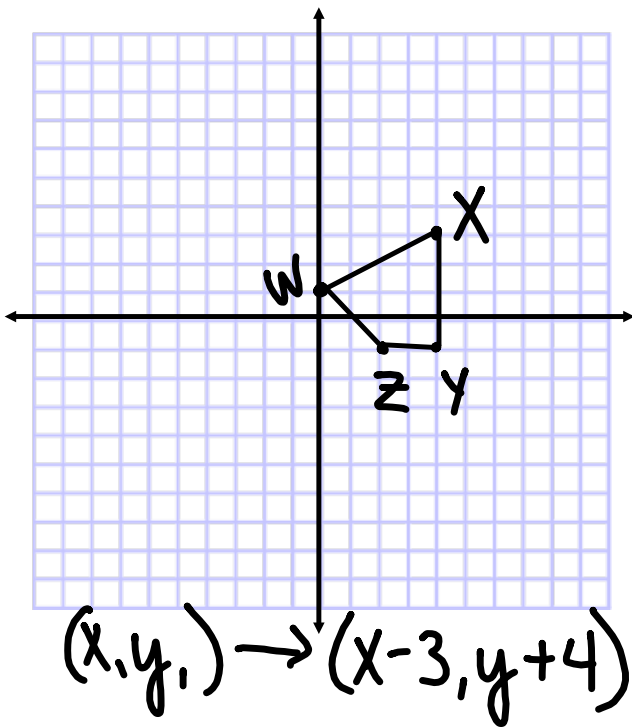
$$(x, y) \rightarrow (x + 3, y - 2)$$

right 3  
down 2



$A(1, 1)$   
 $B(7, 1)$   
 $C(1, 5)$

Translate  $\triangle ABC$  4 units to the left and 6 units down.  
Label the image appropriately.



Name

3.7

pg. 155-158 # 1-8,

10-44 even,

45

49

50