Translations

Today I Can

1. Identify isometries.
2. Find translation images of figures.

Transformations

Transformation

A function, or *mapping* that results in a change in the position, shape, or size of a figure.

- The **pre-image** is the original figure (BEFORE)
- The **image** is the resulting figure (AFTER)

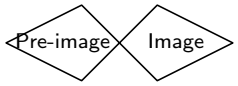
Rigid Motion

A transformation that preserves distance and angle measures (i.e. figures will be congruent).

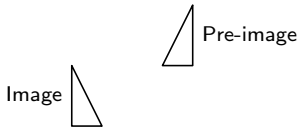
Example 1. Does the transformation appear to be a rigid motion?

1.

2.

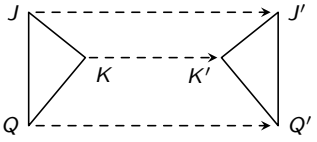


3.



Notation

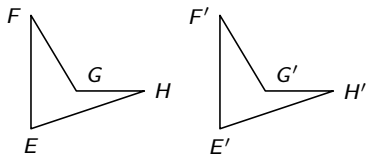
Transformations can be described using **arrow notation**.
Prime notation is sometimes used to identify image points.



$\triangle JKQ \rightarrow \triangle J'K'Q'$

$\triangle JKQ$ maps onto $\triangle J'K'Q'$

Example 2. In the diagram, $EFGH \rightarrow E'F'G'H'$.



(a) What are the images of $\angle F$ and $\angle H$?

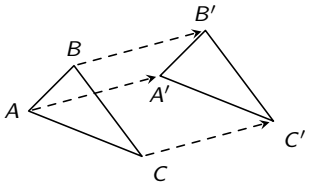
(b) What are the pairs of corresponding sides?

Translations

Translation

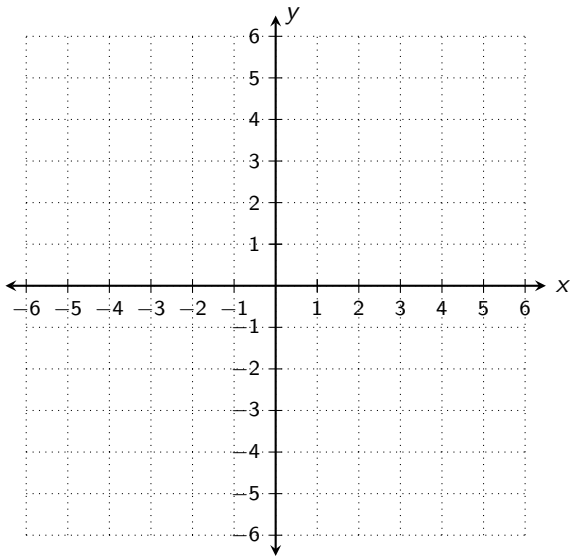
A transformation that maps all points of a figure the same distance in the same direction (i.e. a *slide* of the original figure).

- Corresponding parts (angles and sides) will be congruent.
- Every point gets moved according to the rule.

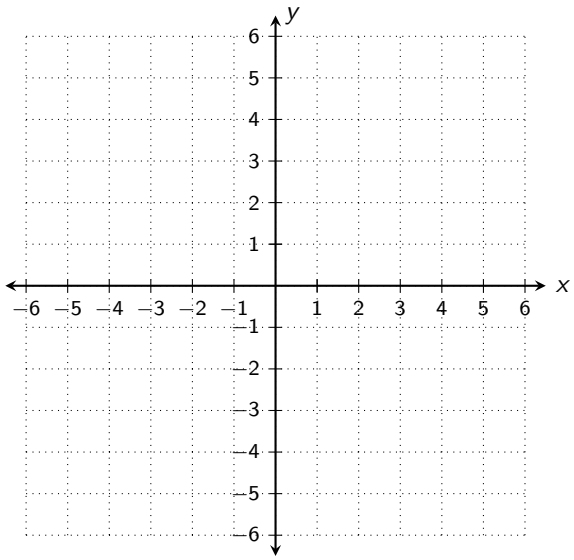


Example 3. Graph each of the following. Write the coordinates of the translated image.

(a) $T(3, 5)$, $C(4, 5)$, $Z(4, 4)$
translate 6 units left and 3 units down.

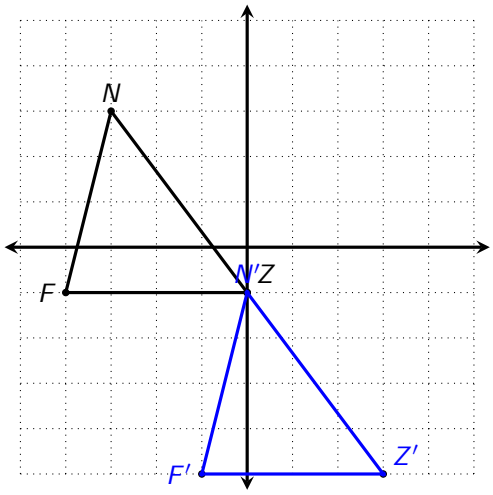


(b) $A(3, -1)$, $L(3, -5)$, $U(1, -5)$, $K(1, -2)$
translate 3 units right and 4 units up.



Example 4. Write the rule for the given translation.

(a)



(b)