8.1 Homework: Translation   **CCSS.HSG.CO.A.5**
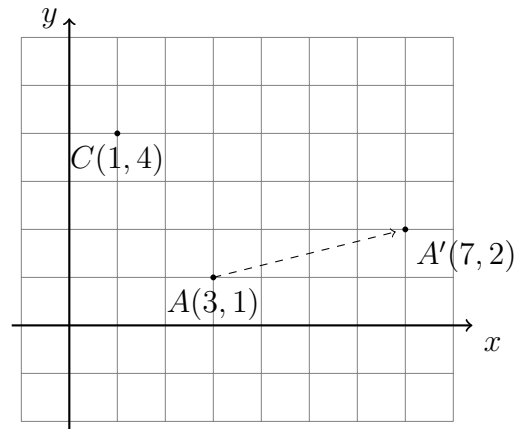
1. Do Now: A translation maps A to A', as shown, $A(3,1) \rightarrow A'(7,2)$.

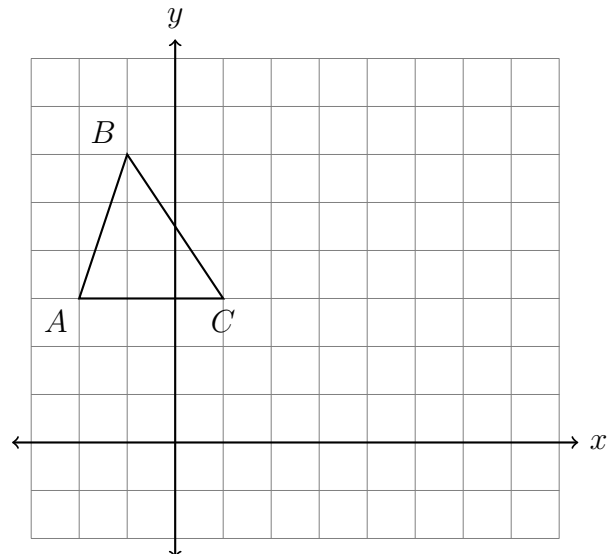   (a) What is the horizontal shift, how many squares right or left?

   (b) What is the vertical shift, how many squares up or down?

   (c) Apply the same translation to $C(1,4) \rightarrow C'(x,y)$. Label the point C' as an ordered pair.

2. Vocabulary: A *preimage* is *mapped* to its *image*. For example, triangle ABC undergoes a transformation to make triangle $A'B'C'$.

   Translate $\triangle ABC$ by $(x,y) \rightarrow (x+6, y-2)$. Make a table of the coordinates and plot and label the image on the axes.

3. Vocabulary: A translation is a *rigid motion*, lengths and angles stay the same. *Corresponding* parts are congruent.

A translation maps triangle KLM onto triangle PQR.
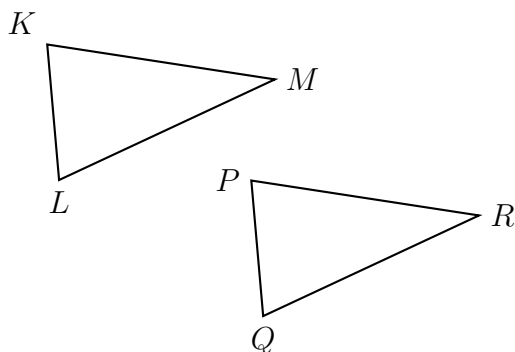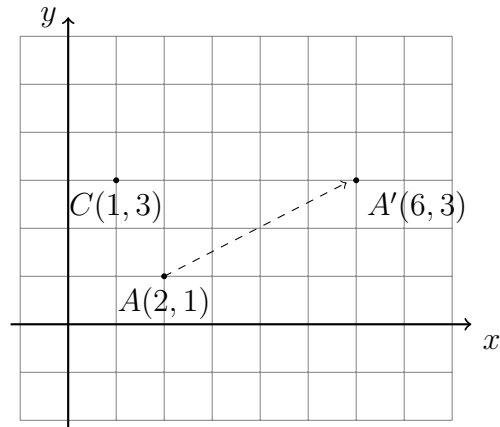

Write each corresponding object.

(a) $L \rightarrow$ _____

(b) $\angle M \cong$ _____

(c) $\overline{LM} \cong$ _____

(d) Justify $\triangle KLM \cong \triangle PQR$. Use the words "rigid motion" and "translation".

4. A translation maps A to A', as shown, $A(2,1) \rightarrow A'(6,3)$.

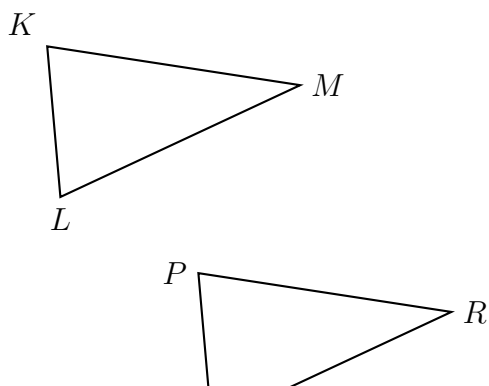(a) What is the horizontal shift, how many squares right or left?

pair.

(b) What is the vertical shift, how many squares up or down?

(c) Apply the same translation to $C(1,3) \rightarrow C'(x,y)$. On the grid, mark and label the point C' as an ordered

5. A translation maps triangle KLM onto triangle PQR.

Fill in the blank with each corresponding object.

(a) $K \rightarrow$ _____

(b) $\angle L \cong$ _____
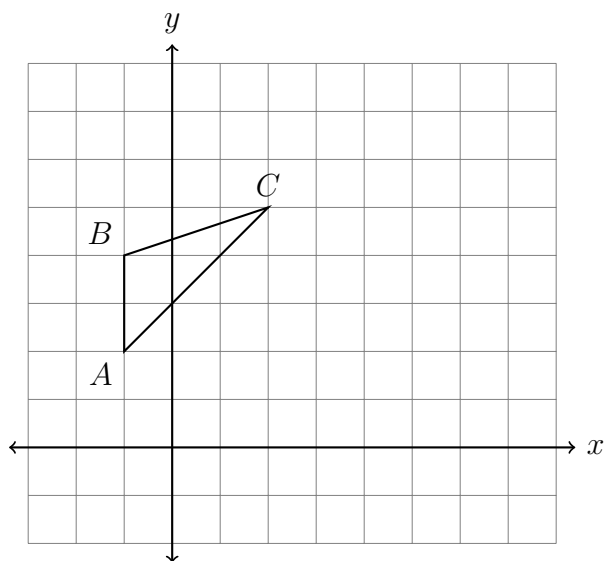
(c) $\overline{KL} \cong$ _____   a scale factor $k = 2$ was performed.

(d) Which statement best justifies $\triangle KLM \cong \triangle PQR$?

Since translation is a rigid motion, the triangle's size and shape remains the same.

A dilation centered at point K with

6. A translation maps $X(1, 6) \to X'(3, 9)$. What is the image of $Y(2, -2)$ under the same translation?

7. Translate $\triangle ABC$ by $(x, y) \to (x + 5, y + 2)$. Make a table of the coordinates and plot and label the image on the axes.

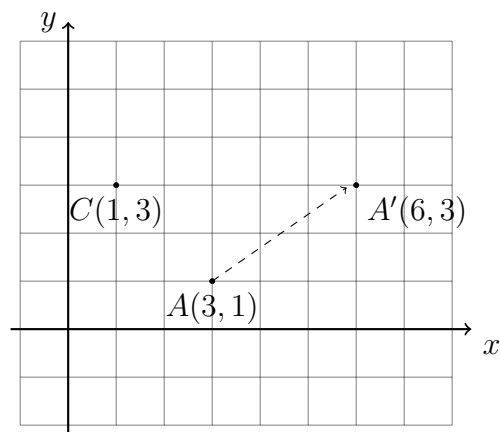8. A translation maps A to A', as shown, $A(3, 1) \to A'(6, 3)$.

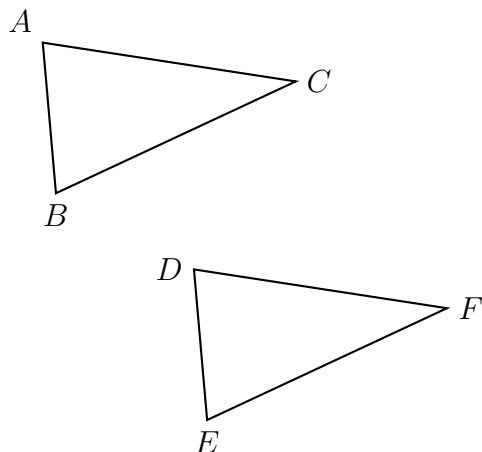(a) What is the horizontal shift, how many squares right or left?

pair.

(b) What is the vertical shift, how many squares up or down?

(c) Apply the same translation to $C(1, 3) \to C'(x, y)$. On the grid, mark and label the point C' as an ordered

9. A translation maps triangle ABC onto triangle DEF.

Fill in the blank with each corresponding object.

(a) $A \rightarrow$ _____

(b) $\angle B \cong$ _____

(c) $\overline{AB} \cong$ _____

(d) Which statement best justifies $\triangle ABC \cong \triangle DEF$?

Since translation is a rigid motion, the triangle's size and shape remains the same.

A dilation centered at point A with a scale factor $k = 2$ was performed.

10. A translation maps $P(3, 5) \rightarrow P'(2, 9)$. What is the image of $Q(-3, 2)$ under the same translation?

11. Translate $\triangle ABC$ by $(x, y) \rightarrow (x + 4, y - 1)$. Make a table of the coordinates and plot and label the image on the axes.