4.7 Prequiz Transformations
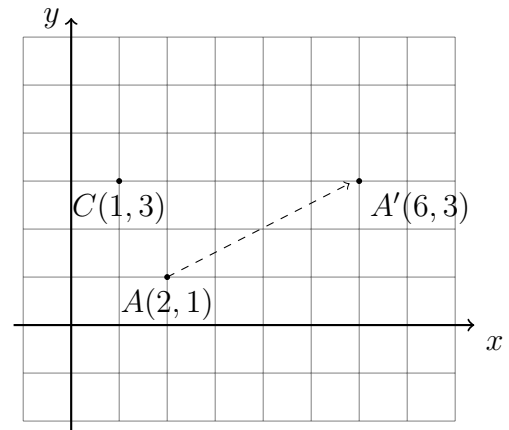
1. A translation maps A to A', as shown, $A(2,1) \to A'(6,3)$.

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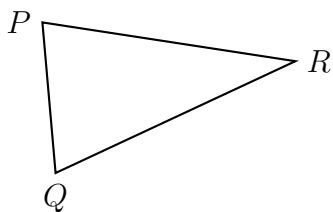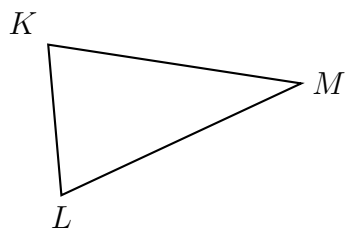
   (b) What is the vertical shift, how many squares up or down?

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

2. A translation maps triangle KLM onto triangle PQR.

   Fill in the blank with each corresponding object.

(a) $K \rightarrow$ _____

(b) $\angle L \cong$ _____

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

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

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

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

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

4. Translate $\triangle ABC$ by $(x, y) \rightarrow (x + 5, y + 2)$. Make a table of the coordinates and plot and label the image on the axes.
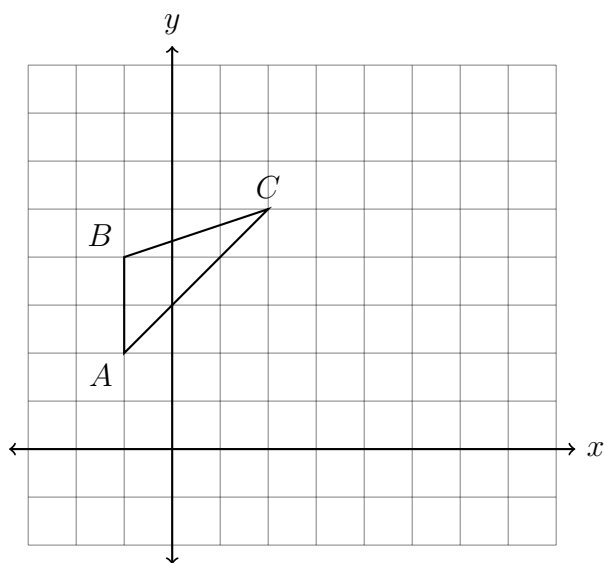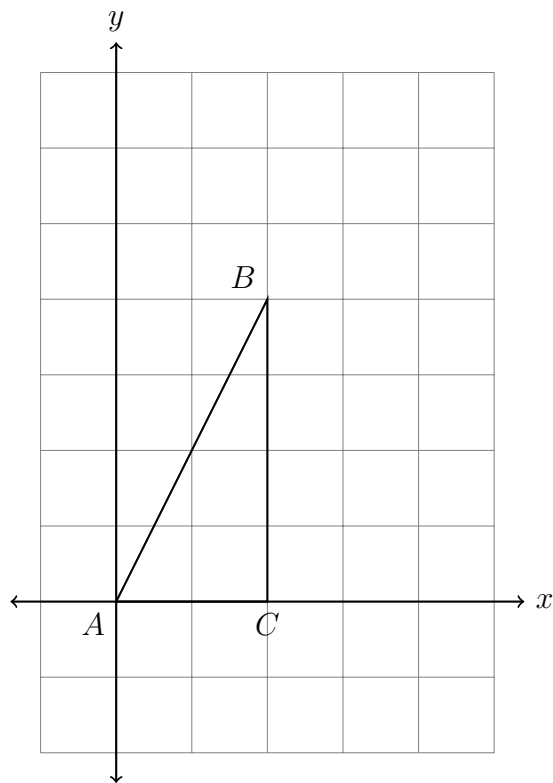
5. A dilation centered at A with scale factor $k = 2$ maps $\triangle ABC \to \triangle ADE$. Given the sides of the preimage, $AC = 8$, $BC = 6$, $AB = 10$.
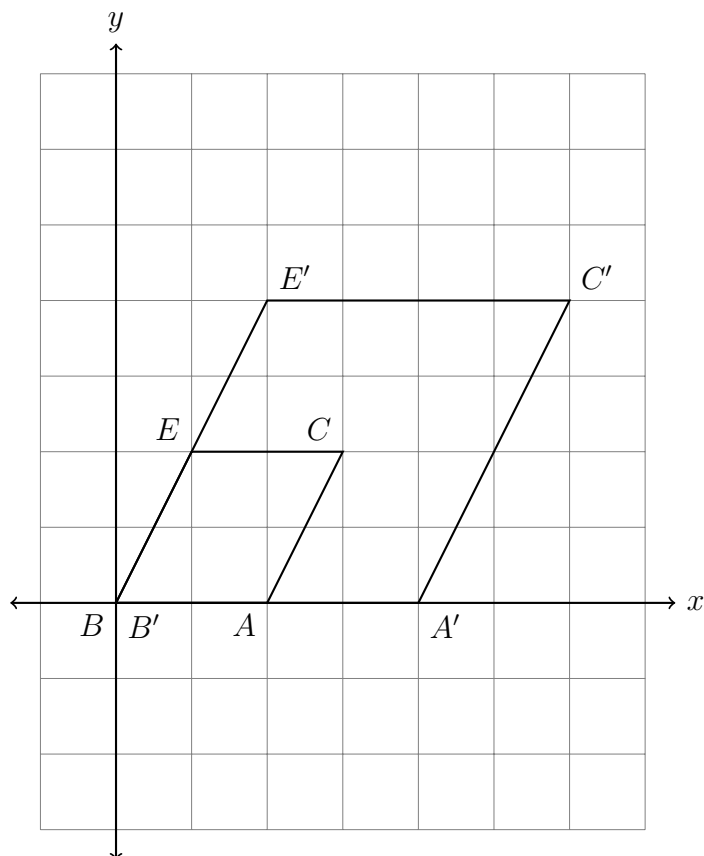
   $DE = 12$, how long are AD and AE?
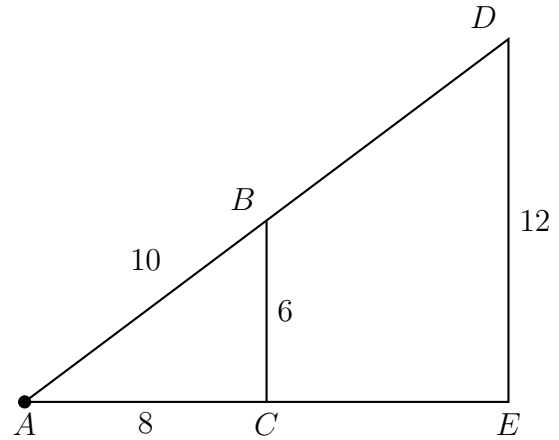
6. Dilate $\triangle ABC \to \triangle A'B'C'$ by a factor of $k = 1.5$ centered at the origin, $(x, y) \to (1.5x, 1.5y)$. Plot and label the image on the axes. Make a table of the vertices and their coordinates.

7. A transformation is performed on a parallelogram, $BECA \rightarrow B'E'C'A'$, as shown in the diagram.

Fully characterize the transformation. (hint: Translations must include both x and y directions and magnitudes. Dilations must specify the center and scale factor.)

8. Dilate $\triangle ABC \to \triangle A'B'C'$ by a factor of $k = 3$ centered at the origin, $(x, y) \to (3x, 3y)$. Plot and label the image on the axes. Make a table of the vertices and their coordinates.