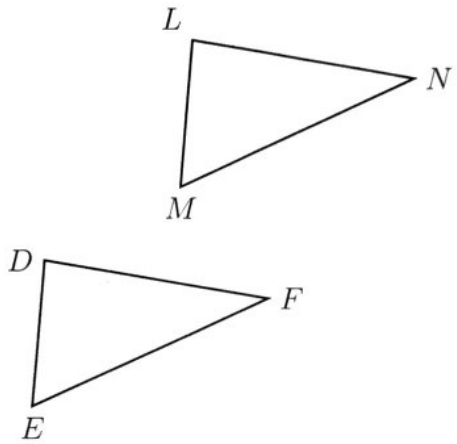
Name: Solutions

7.5 Classwork: Mixed congruence transformations **CCSS.HSG.CO.A.5**

1. A translation maps triangle DEF onto triangle LMN. Write the letter or letters for each corresponding object.



(a) $E \rightarrow$ M

(b) $F \rightarrow$ N

(c) $DF \rightarrow$ LN

2. A translation maps A to A', as shown, $A(7,1) \rightarrow A'(2,3)$.

(a) Which direction is the slide?

(A) Up, to the right

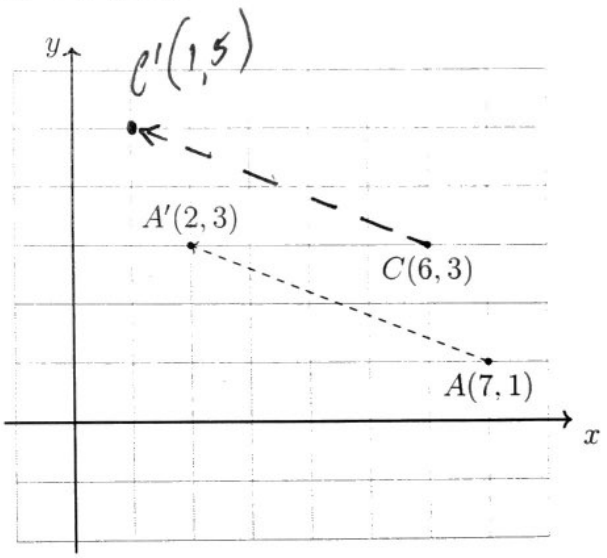
(B) Up, to the left

(C) Down, to the right

(D) Down, to the left

(E) None of the above

(b) Apply the same translation to $C(6,3) \rightarrow C'(x,y)$, marking and labeling point C' as an ordered pair.

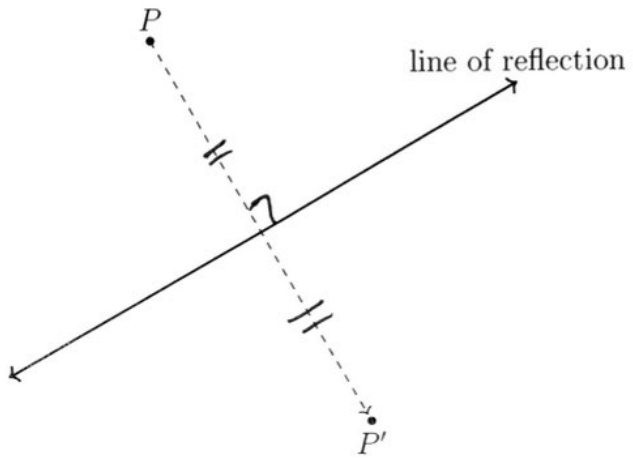


3. What translation would map $P(4,10) \rightarrow P'(11,2)$?

right 7, down 8

$T_{+7,-8}$

4. Check your notes: *Reflection* is a transformation, also called "flipping." Reflection is like looking in the mirror.
   (a) Lengths and angles are maintained (it is a rigid motion, or isometry)
   (b) The *orientation* is reversed. (letters are all backwards)
   (c) The *line of reflection* is a perpendicular bisector of the segment connecting a reflected point to its image.

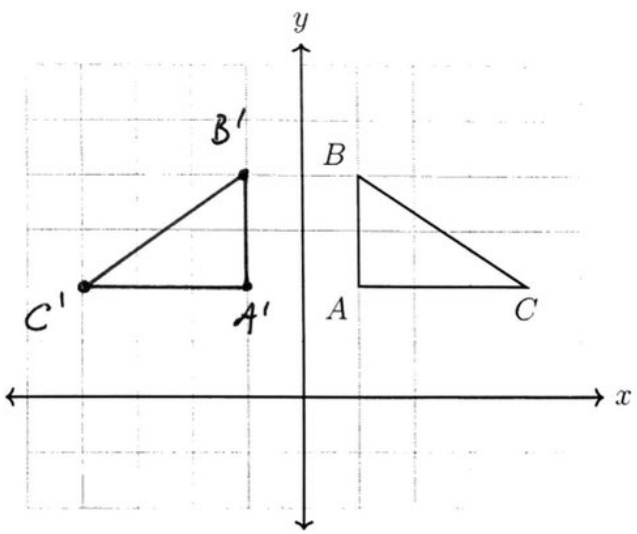


5. Reflect the triangle across the y-axis, $\triangle ABC \to \triangle A'B'C'$. Complete the table of the coordinates and plot and label the image on the grid.

$A(1,2) \to$ $A'(-1,2)$

$B(1,4) \to$ $B'(-1,4)$

$C(4,2) \to$ $C'(-4,2)$

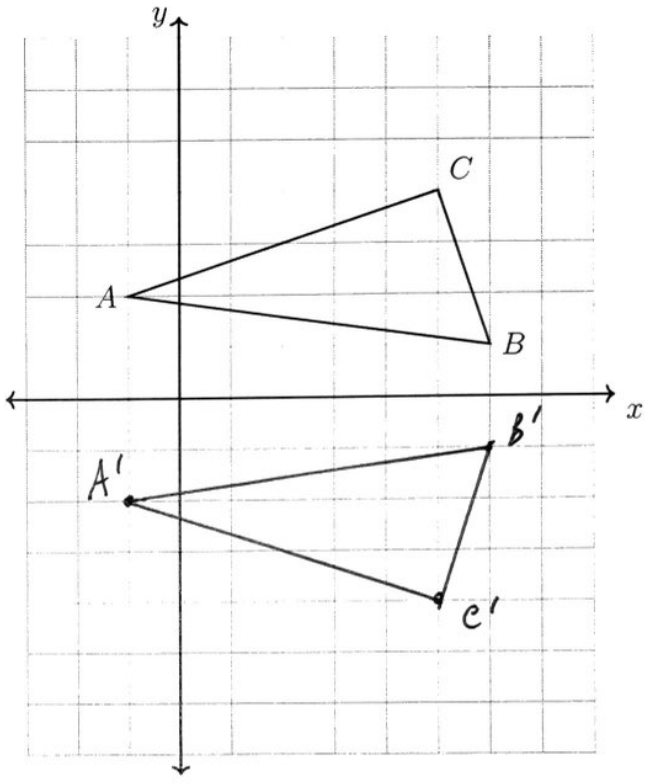


6. What reflection maps $Q(5,1) \to Q'(-5,1)$?

reflect across the y-axis

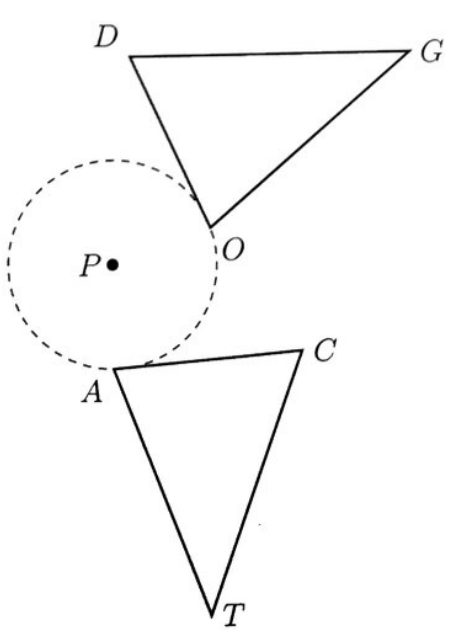
7. $\triangle ABC$ is shown with vertices $A(-1, 2)$, $B(6, 1)$, and $C(5, 4)$. Reflect the triangle across the x-axis. Write down its coordinates in a table and plot and label it on the graph.

$A(-1,2) \to A'(-1,-2)$
$B(6,1) \to B'(6,-1)$
$C(5,4) \to C'(5,-4)$



8. A 110° counterclockwise rotation centered at P maps triangle CAT onto triangle DOG.

Write the letter or letters for each corresponding object.



(a) $T \to$ G

(b) $A \to$ O

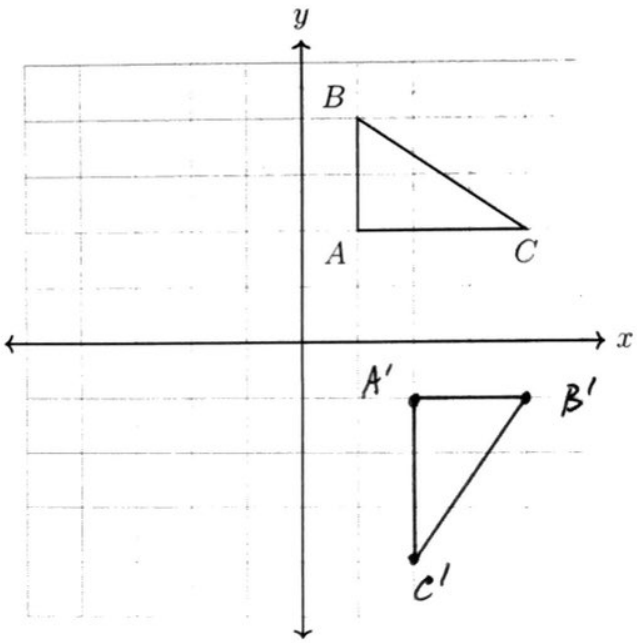
(c) $\overline{AC} \to$ ~~$\overline{GO}$~~ $\overline{OD}$

9. Rotate the triangle 90° clockwise around the origin, $\triangle ABC \rightarrow \triangle A'B'C'$. Complete the table of the coordinates and plot and label the image on the grid.

$A(1,2) \rightarrow$ A'(2, -1)

$B(1,4) \rightarrow$ B'(4, -1)

$C(4,2) \rightarrow$ C'(2, -4)



10. A composition of two transformations is applied to $\triangle ABC$, shown in the diagram. Writed down the two transformations, fully characterizing them, in order.

Reflect across the x-axis

Translate 5 to the left