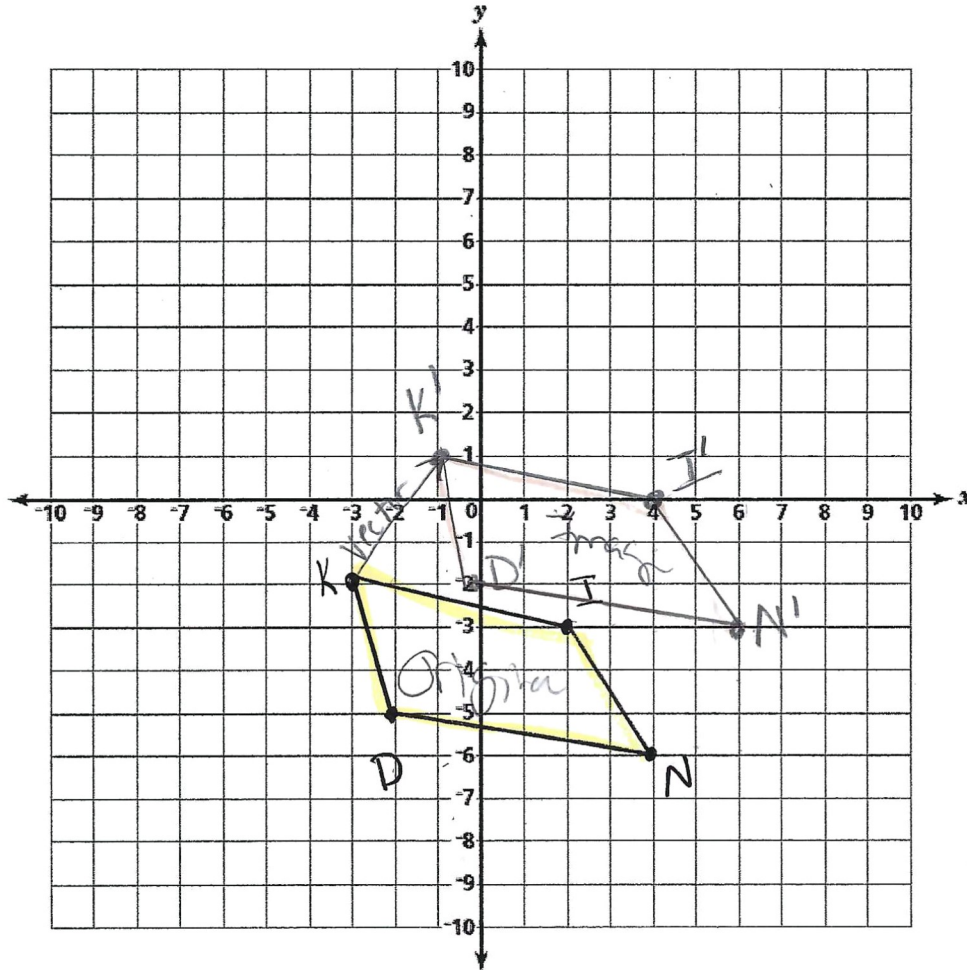


Translation Day II

1) Translate figure KIND two units to the right and three units up.



Find the coordinates of:

K' (-1, 1) I' (4, 0) N' (6, -3) D' (0, -2)

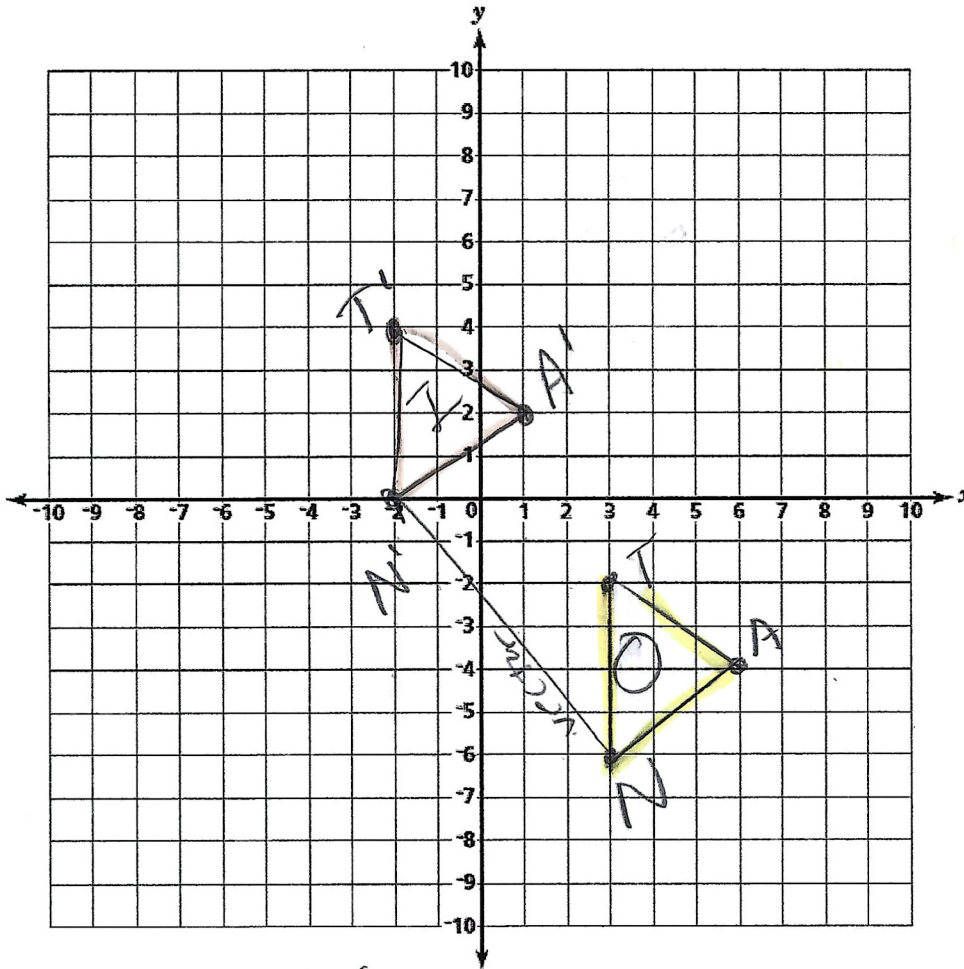
Explain how you determined the location of N':

I slid point N 2 units to the right + 3 units up to get point N'

TRANSLATIONS	
Type	Rule
Move right a units	Add a to each x -coordinate: $(x, y) \rightarrow (x + a, y)$
Move left a units	Subtract a from each x -coordinate: $(x, y) \rightarrow (x - a, y)$
Move up b units	Add b to each y -coordinate: $(x, y) \rightarrow (x, y + b)$
Move down b units	Subtract b from each y -coordinate: $(x, y) \rightarrow (x, y - b)$

2)

a) Graph $\triangle TAN$: $T(3, -2)$, $A(6, -4)$, $N(3, -6)$



b) Translate $\triangle TAN$ using $T(x-5, y+6)$

The directions
 ↓
 5 left 6 up

$T'(-2, 4)$
 $A'(1, 2)$
 $N'(-2, 0)$

3) Add the directions onto the coordinates to find the new point.

a) $A(5, 3)$ under $T_{(x+2, y-3)}$ becomes $A' \underline{(7, 0)}$
 $\begin{matrix} xy \\ (5+2, 3-3) \end{matrix}$

b) $B(-6, 1)$ under $T_{(x+8, y+1)}$ becomes $B' \underline{(2, 2)}$
 $\begin{matrix} xy \\ (-6+8, 1+1) \end{matrix}$

4) Translations are noted by the letter T and then a set of directions.

$T_{(x+2, y+1)}$ can also be written as $T_{(2, 1)}$
 $\begin{matrix} (x+2, y+1) \\ (2, 1) \end{matrix}$

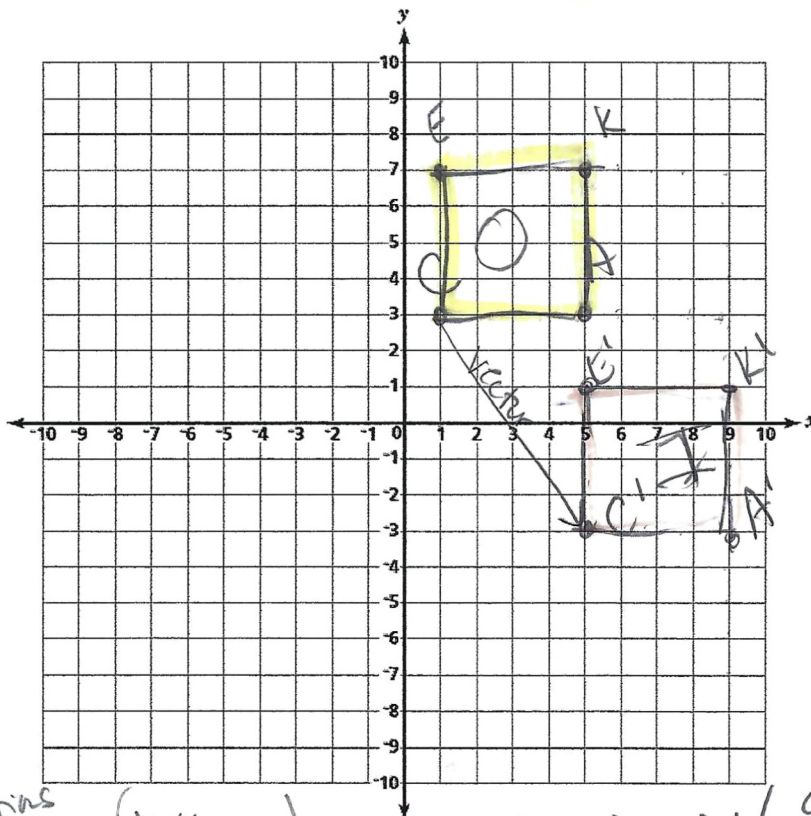
$T_{(x-3, y+5)}$ can also be written as $T_{(-3, 5)}$
 $\begin{matrix} (x-3, y+5) \\ (-3, 5) \end{matrix}$

$T_{(x-4, y-2)}$ can also be written as $T_{(-4, -2)}$
 $\begin{matrix} (x-4, y-2) \\ (-4, -2) \end{matrix}$

a) $C(2, 7)$ under $T_{(-2, -3)}$ becomes $C' \underline{(0, 4)}$
 $\begin{matrix} x-2 & y-3 \\ \uparrow & \uparrow \\ (2-2, 7-3) \end{matrix}$

b) $D(-1, 3)$ under $T_{(3, -5)}$ becomes $D' \underline{(2, -2)}$
 $\begin{matrix} x+3 & y-5 \\ \downarrow & \downarrow \\ (-1+3, 3-5) \end{matrix}$

5) a) Graph rectangle CAKE: $C(1, 3)$, $A(5, 3)$, $K(5, 7)$, $E(1, 7)$.



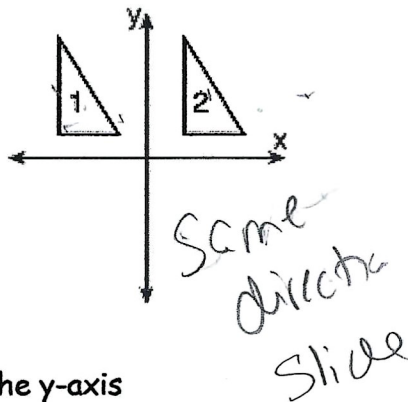
Set of Directions

b) Translate CAKE using $T_{(4, -6)}$
 $\begin{matrix} (x+4, y-6) \\ (4, -6) \end{matrix}$

4 right → 6 down

$C'(5, 3)$ $A'(9, 3)$ $K'(9, 1)$ $E'(5, 1)$

6) In the accompanying diagram, what type of transformation makes triangle 2 the image of triangle 1?



A) reflection in the y-axis

B) translation

C) rotation centered at the origin

D) dilation

8) If a translation maps point $A(-3, 1)$ to the point $A'(5, 5)$, the translation can be represented by

A) $(x + 8, y + 4)$

B) $(x + 2, y + 4)$

C) $(x + 2, y + 6)$

D) $(x + 8, y + 6)$

$A(-3, 1) \rightarrow A'(5, 5)$
 $(x + 8, y + 4)$

7) What is the image of the point $(-3, -1)$ under the translation that shifts (x, y) to $(x - 2, y + 4)$?

A) $(-5, 5)$

B) $(-1, 3)$

C) $(-1, -5)$

D) $(-5, 3)$

$(-3 - 2, -1 + 4)$

$(-5, 3)$

9) A translation maps $(1, 4)$ onto $(7, -3)$. Write the image of $(5, 10)$ under the same translation.

$(1, 4) \rightarrow (7, -3)$

$(x + 6, y - 7)$

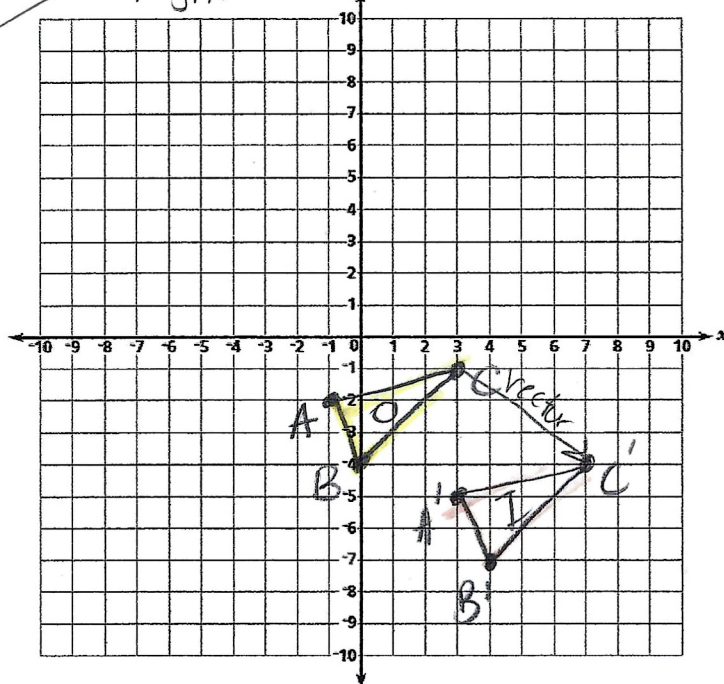
$(5 + 6, 10 - 7)$

$(11, 3)$

10) Given triangle ABC with coordinates $A(-1, -2)$, $B(0, -4)$, and $C(3, -1)$. Graph and label $\Delta A'B'C'$, the image of ΔABC after the translation $(x + 4, y - 3)$.

Set of directions

right 4 down 3



$A'(3, -5)$

$B'(4, -7)$

$C'(7, -4)$