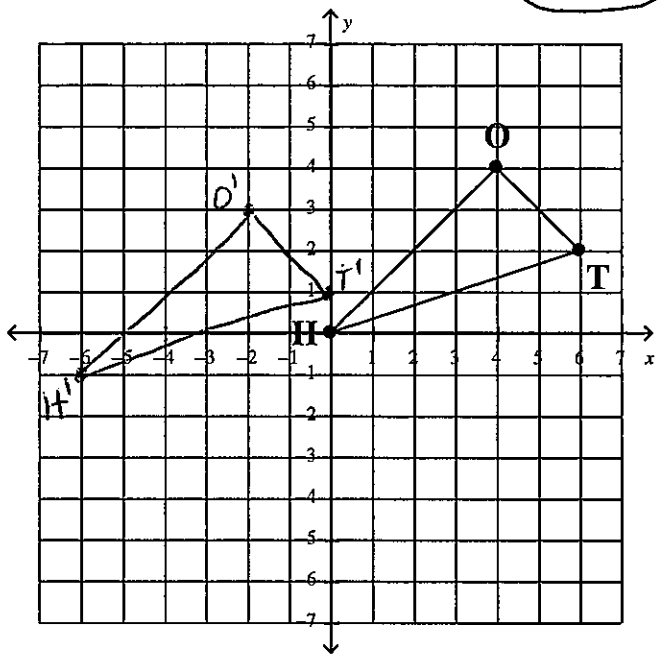
Name: Key **Date:** _____

M8-U3: HW #1 – Translations **Class:** _____

1. Draw the translation of the triangle *HOT* six units left and one unit down. Label the image *H'O'T'*. Is the image similar or congruent? How do you know?



same shape & size

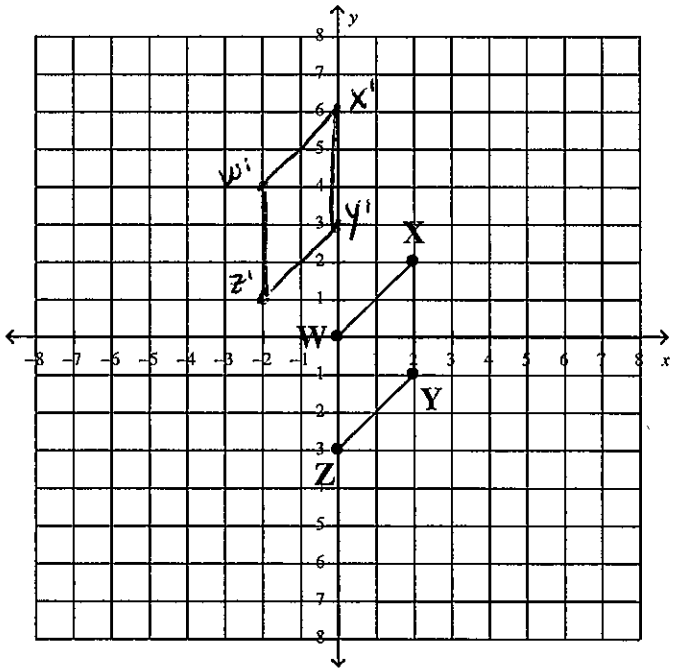
$(x,y) \rightarrow (x-6, y-1)$

$H(0,0) \rightarrow H'(-6,-1)$

$O(4,4) \rightarrow O'(-2,3)$

$T(6,2) \rightarrow T'(0,1)$

2. Find the translation of the quadrilateral *WXYZ* under the rule $(x, y) \rightarrow (x-2, y+4)$.



$(x,y) \rightarrow (x-2, y+4)$

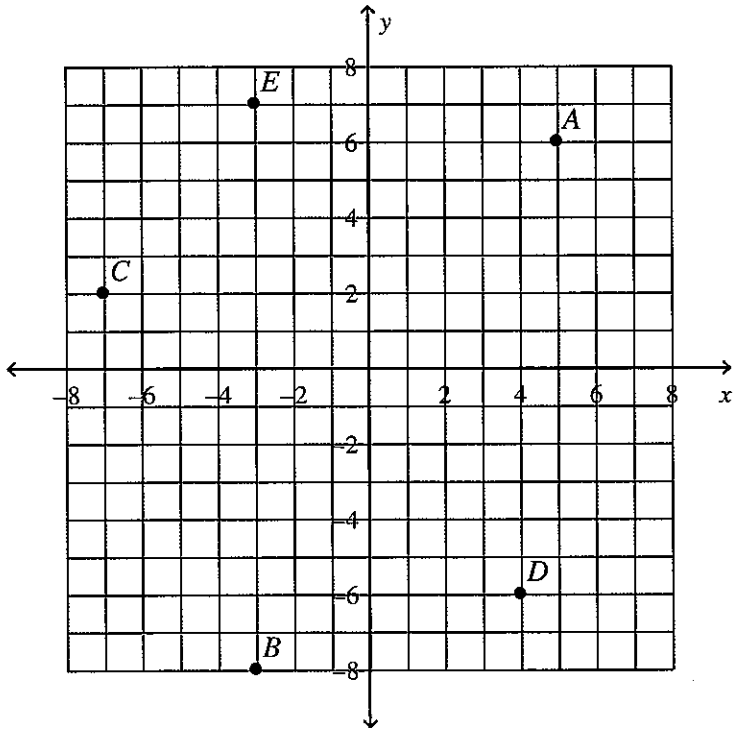
$W(0,0) \rightarrow W'(-2,4)$

$X(2,2) \rightarrow X'(0,6)$

$Y(2,-1) \rightarrow Y'(0,3)$

$Z(0,-3) \rightarrow Z'(-2,1)$

Use the grid below to answer questions 3 through 5.



3. Find the rule to describe the translation from point A to point B.

$(x, y) \rightarrow (x-8, y-14)$

4. Find the rule to describe the translation from point C to point D.

$(x, y) \rightarrow (x+11, y-8)$

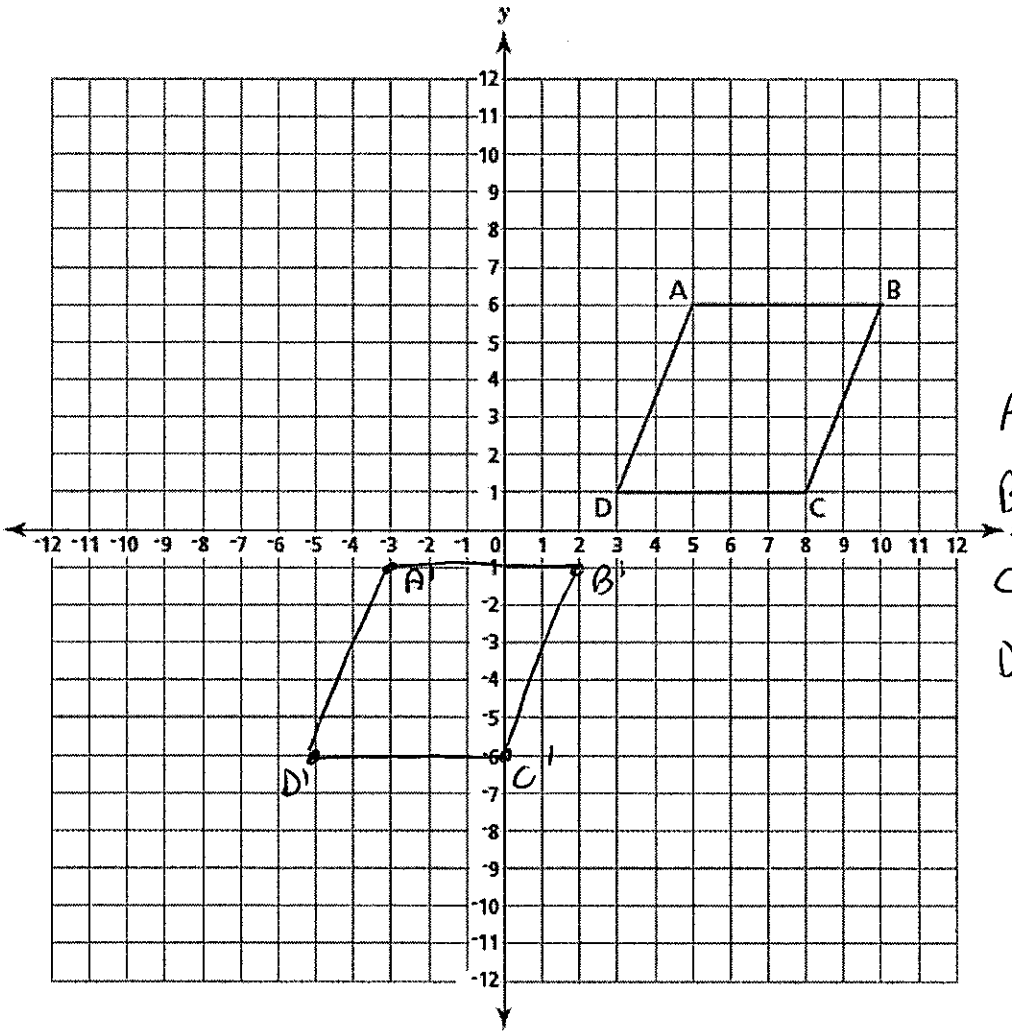
5. Find the rule to describe the translation from point E to point A.

$(x, y) \rightarrow (x+8, y-1)$

6. Quadrilateral *ABCD* is plotted on the grid below.

Part A

On the graph, draw the translation of polygon *ABCD* eight units to the left and seven units down. Label the image *A'B'C'D'*.



$(x,y) \rightarrow (x-8, y-7)$

$A(5,6) \rightarrow A'(-3,-1)$

$B(10,6) \rightarrow B'(2,-1)$

$C(8,1) \rightarrow C'(0,-6)$

$D(3,1) \rightarrow D'(-5,-6)$

Part B

On the lines below, explain how you determined the location (means coordinate) of *A'*.

Used the rule $(x,y) \rightarrow (x-8, y-7)$

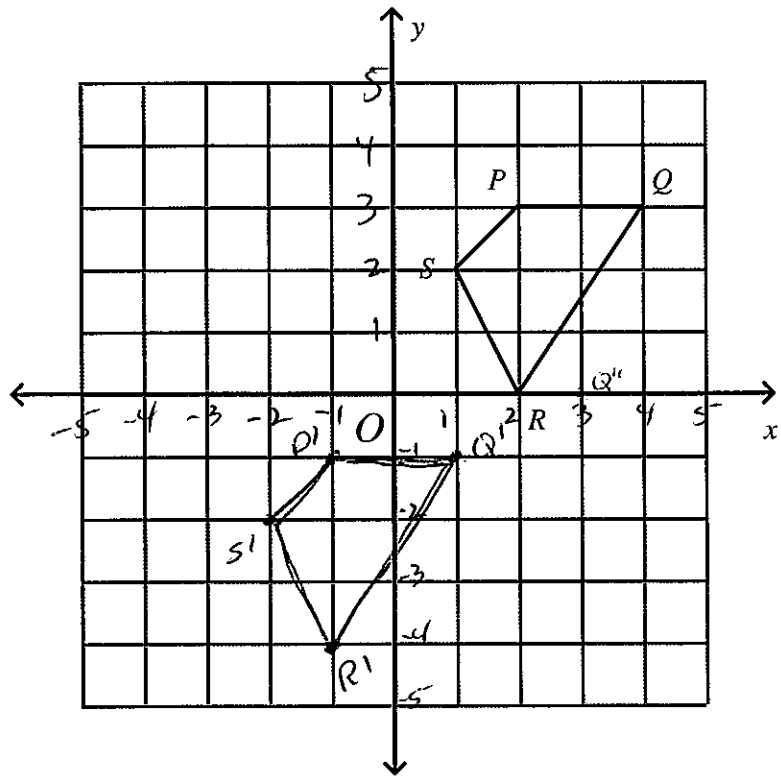
So $A(5,6) \rightarrow A'(-3,-1)$ or

A(5,6) is moved 8 units to the left on the x-axis and down 4 units on the y-axis

So $A'(-3,-1)$

7. Quadrilateral *PQRS* is plotted on the grid below.

On the graph, draw the translation of polygon *PQRS* three units to the left and four units down. Label the image *P'Q'R'S'*.



$(x, y) \rightarrow (x-3, y-4)$

$P(2,3) \rightarrow P'(-1,-1)$

$Q(4,3) \rightarrow Q'(1,-1)$

$R(2,0) \rightarrow R'(-1,-4)$

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

Now create polygon *P"Q"R"S"* by translating polygon *P'Q'R'S'* using the rule $(x, y) \rightarrow (x+2, y+1)$. What will be the coordinates of point *Q"*?

Answer $Q''(3,0)$

On the lines below, write a single translation rule from polygon *PQRS* to polygon *P"Q"R"S"*.

$(x, y) \rightarrow (x-1, y-3)$

Spiral:

Solve the equations. If appropriate write *identity* or *no solution.* Show all work

8. $\frac{3}{4}t - \frac{5}{6} = \frac{2}{3}t$

$-\frac{3}{4}t \quad -\frac{3}{4}t$

$-\frac{5}{6} = -\frac{1}{12}t$

$\frac{-5}{6} \div \frac{-1}{12} \quad \frac{-1}{12}t \div \frac{-1}{12}$

$10 = t$

9. Denise's cell phone plan is \$29.95 per month plus \$0.10 per minute of call time. Denise's cell phone bill is \$99.95. For how many minutes was she billed?

Let: m = # of minutes

$29.95 + .10m = 99.95$

$-29.95 \quad -29.95$

$\frac{.10m}{.10} = \frac{70}{.10}$

$m = 700$ mins