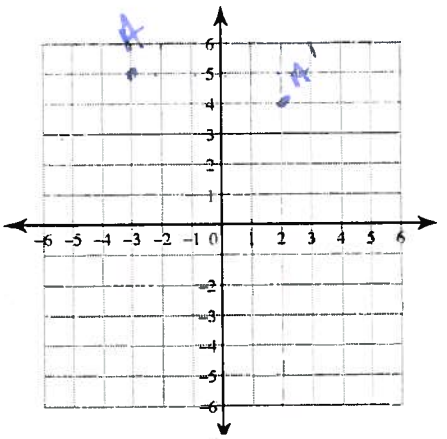
Translations Intro

Name: Key

1)



You are going to Translate point A to point A'.
First graph the point (-3,5) and label it A.
Now graph the point (2,4) and label it A'.

Write out how you could describe the movement from A → A'.

Right 5
Down 1

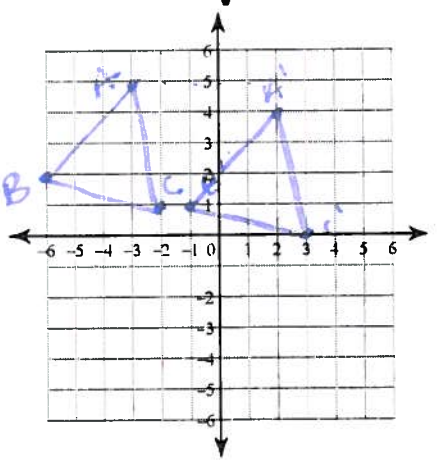
How do the coordinates from A change when they go to A'?

Fill in the blanks:

A → A'

(-3, 5) → (-3 + 5, 5 − 1)

2)

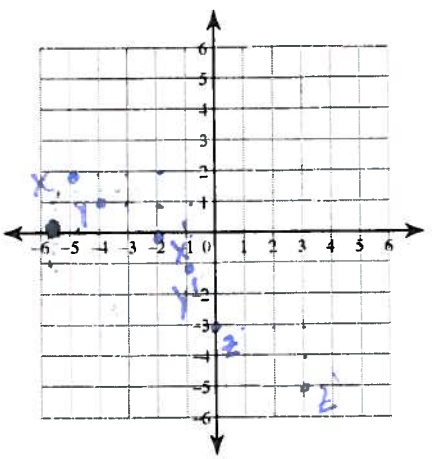


You are now going to translate a whole triangle:
Graph and label the points A (-3,5) , B (-6, 2) , and C (-2, 1)
Now graph and label the points A' (2,4), B' (-1, 1), C' (3, 0)

Write out how you could describe the translation of Δ ABC to Δ A'B'C': (x+5, y-1)

How do the coordinates from the points in Δ ABC change when they get translated to Δ A'B'C'? Right 5 Down 1

3)

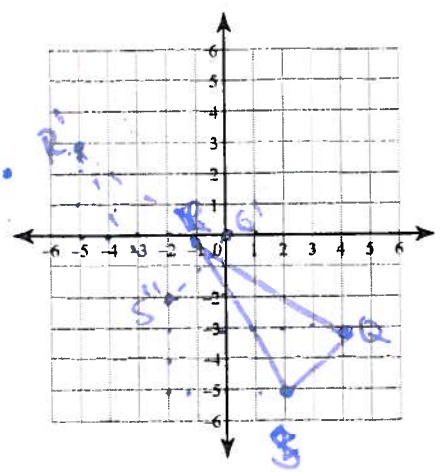


Now you will translate Δ XYZ, where X (-5, 2), Y (-4, 1), Z (0, -3).
First graph and label Δ XYZ.
Now translate Δ XYZ → Δ X'Y'Z' by the rule: add 3 to the x value, and subtract 2 from they y value. This is written as:
$(x, y) \rightarrow (x+3, y-2)$.
Graph and label Δ X'Y'Z' by the rule: $(x, y) \rightarrow (x+3, y-2)$

Write the points for Δ X'Y'Z':
X' (-2, 0) Y' (-1, -1) Z' (3, -5)

Did the shape of the triangle change?

4)



Now you will translate Δ QRS, where Q (4, -3), R (-1, 0), S (2, -5).
First graph and label Δ QRS.
Now translate Δ QRS → Δ Q'R'S' by the rule: subtract 4 from the x value, and add 3 to they y value.
Graph and label Δ Q'R'S' by the rule

Fill in the blanks for this translation: $(x, y) \rightarrow (x$ -4 , y +3 $)$.

Write the points for Δ Q'R'S':
Q' (0, 0) R' (-5, 3) S' (-2, -7)

Did the shape of the triangle change?

5) If I were to ask you to translate $\Delta LMN \rightarrow \Delta L'M'N'$ by the rule: $(x, y) \rightarrow (x-5, y+4)$, and L is at (a, b), M is at (c, d) and N is at (e, f), how would you write the coordinates for $\Delta L'M'N'$?

L' (a-5, b+4) L(a, b)

M' (c-5, d+4) M(c, d)

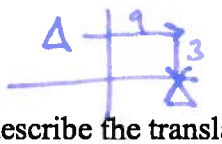
N' (e-5, f+4) N(e, f)

6) Using words, describe the translation that would be made by the rule : $(x, y) \rightarrow (x-5, y+4)$

Left 5, up 4 units

7) Using words, describe the translation that would be made by the rule : $(x, y) \rightarrow (x+9, y-3)$
(How would this change the position of a triangle?)

Right 9 units and 3 units down



8) Using words, describe the translation that would be made by the rule : $(x, y) \rightarrow (x-1, y+0)$
(How would this change the position of a triangle?)

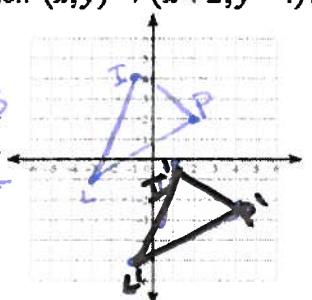
Move left one

everything would shift left 1 unit

9. Graph each figure and the image under the given translation. Name the new coordinates.

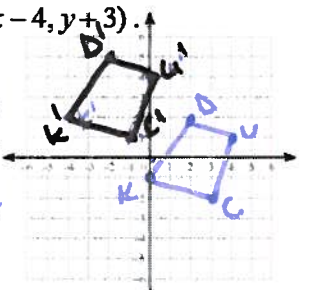
a. ΔLIP with vertices L(-3, -1), I(-1, 4), and P(2, 2) under the translation $(x, y) \rightarrow (x+2, y-4)$.

L' -1, -5
I' 1, 0
P' 4, -2



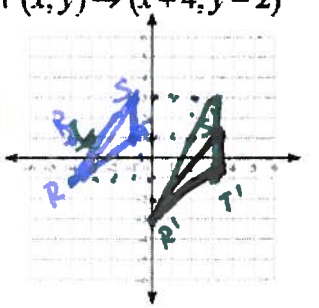
b. Quadrilateral DUCK with vertices D(2,2), U(4, 1), C(3, -2), and K(0,-1) under the translation $(x, y) \rightarrow (x-4, y+3)$.

D' -2, 5
U' 0, 4
C -1, 1
K' -4, 2



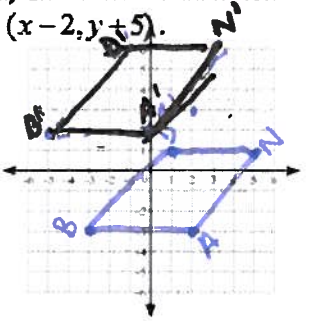
c. ΔRST with vertices R(-4, -1), S(-1, 3), and T(-1, 1)under the translation $(x, y) \rightarrow (x+4, y-2)$

R' 0, -3
S' +3, 1
T' 3, -1



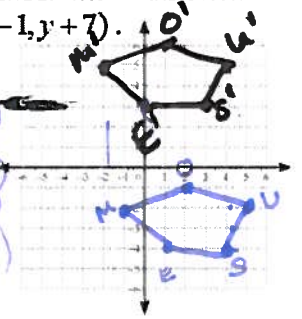
d. Quadrilateral BAND with vertices B(-3, -3), A(2, -3), N(5, 1), and D(1, 1) under the translation $(x, y) \rightarrow (x-2, y+5)$.

B' -5, 2
A' 0, 2
N' 3, 6
D' -1, 6



e. Pentagon MOUSE with vertices M(-1, -2), O(2, -1), U(5, -2), S(4, -4), and E(1, -4) under the translation $(x, y) \rightarrow (x-1, y+7)$.

M' -2, 5
O' 1, 6
U' 4, 5
S' 3, 3
E' 0, 3



f. Quadrilateral MATH with vertices M(4, 1), A(2, 4), T(0,6), and H(1,2) under the translation $(x, y) \rightarrow (x-2, y-3)$.

M' 2, -2
A' 0, 1
T' -2, 3
H' -1, -1