COMPOSITION

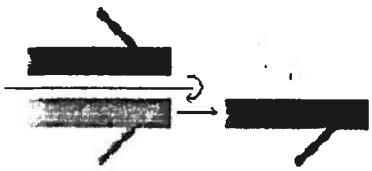
5/2

notes (page 2)

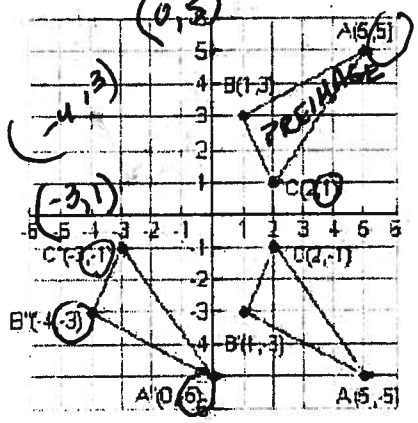
Glide Reflections

Name_____

1. The diagram at the right is an illustration of a glide reflection. Explain to someone not familiar with the term "glide reflection" what is occurring.



2. The graph below shows ΔABC becoming $\Delta A''B''C''$ under a glide reflection.



a) Write a composition of transformations representing this glide reflection.

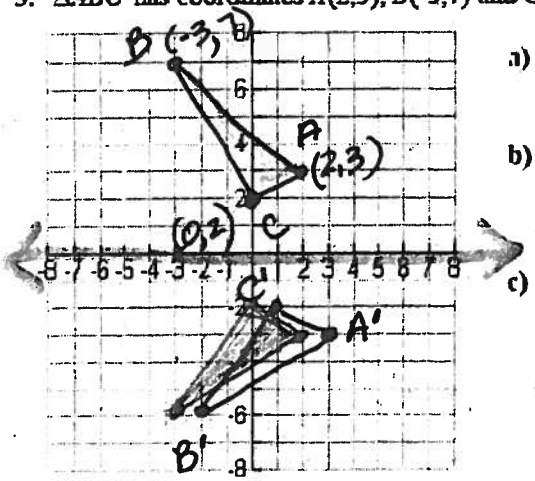
$T_{(x-5,y)} \circ r_{x\text{-axis}}$

b) Write one mapping that will accomplish this same glide reflection.

translation $x-5, -y$ ← opposite of

2 methods

3. ΔABC has coordinates $A(2,3)$, $B(-3,7)$ and $C(0,2)$.



a) Plot ΔABC and plot its image after the mapping $(x, y) \rightarrow (x+1, -y)$.

→ translation

$x+1, -y$

$A(2,3) \rightarrow (3,-3)$

$B(-3,7) \rightarrow (-2,-7)$

$C(0,2) \rightarrow (1,-2)$

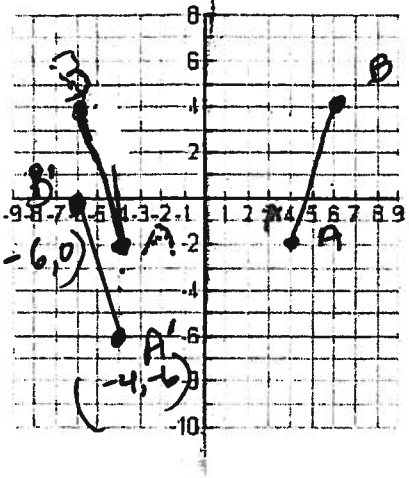
b) A glide reflection is occurring under this mapping. What is the line of reflection for the glide reflection?

x-axis

c) Write a composition of transformations to represent this glide reflection.

$T_{(x+1,-y)} \circ r_{x\text{-axis}}$

4. A glide reflection occurs on the segment joining points $A(4,-2)$ and $B(6,4)$ under $T_{0,-4} \circ r_{y\text{-axis}}$.



a) Plot the segment.

b) Plot the image after the composition has occurred and state the coordinates: $A'(-4,-6)$ and $B'(-6,0)$

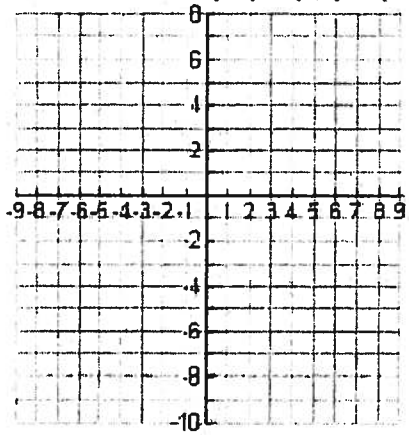
c) What is the line of reflection of the glide reflection? y-axis

d) Write the glide reflection as a single mapping.

Translation

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

5. Given ΔABC: $A(1,4)$, $B(3,7)$, $C(5,1)$.



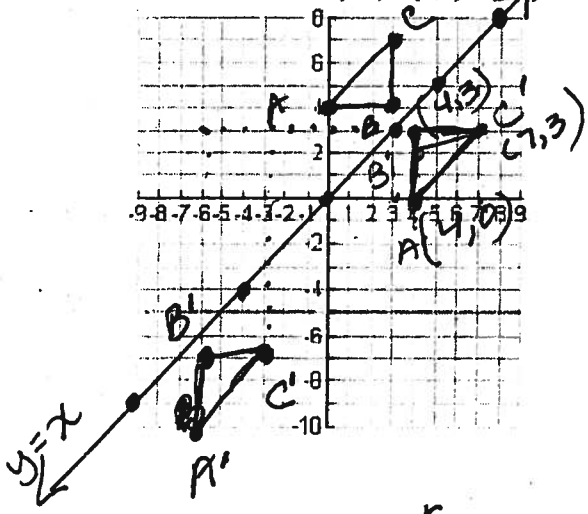
a) Graph ΔABC

b) Graph and label the image under $T_{-5,-2} \circ r_{x\text{-axis}}$

$A'(\ ,\ )$ $B'(\ ,\ )$ $C'(\ ,\ )$

c) In this composition, a translation and a reflection have occurred. Is this a glide reflection?_____ Explain.

6. Given ΔABC: $A(0,4)$ $B(3,4)$ $C(3,7)$



a) Graph ΔABC.

b) Graph and label the image under $T_{-10,-10} \circ r_{y=x}$.

$A'(\ ,\ )$ $B'(\ ,\ )$ $C'(\ ,\ )$

c) Is this composition a glide reflection? Explain.

Yes!

Reflect then Translate

d) Can this composition be written as a single mapping?

$(x,y) \rightarrow (y-10, x-10)$

	$r_{y=x}$	$T_{-10,-10}$
$A(0,4)$	$(4,0)$	$(-6,-10)$
$B(3,4)$	$(4,3)$	$(-6,-7)$
$C(3,7)$	$(7,3)$	$(-3,-7)$