Geometry CC – Mr. Valentino
Unit 4 Lesson 7: Compositions of Functions

Name: _____
Date: _____ Period: _____

Aim: What are compositions of transformations?

Do Now:

1. Graph ΔABC:
A(5, 6) B(1, 2) C(2, 8)

2. $r_{y\text{-axis}}$ΔABC. Label it ΔA'B'C'

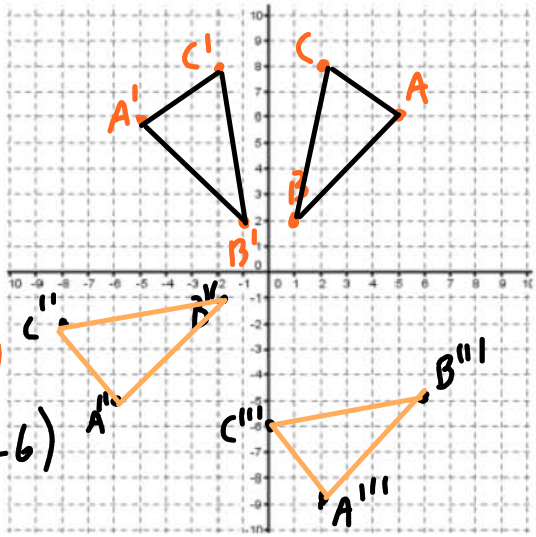
A'(-5,6) B'(-1,2) C'(-2,8)

3. $R_{O,90}$ Δ A'B'C'. Label it ΔA"B"C"

A" (-6,-5) B" (-2,-1) C" (-8,-2)

4. $T_{8,-4}$Δ A"B"C". Label it ΔA"'B"'C"'

A"'(2,-9) B"'(6,-5) C"'(0,-6)



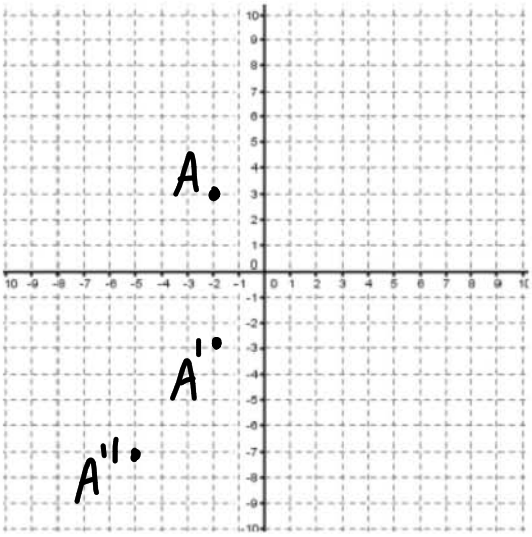
Compositions of Transformations! What is that? Let's discuss.

$R_{180^\circ} \circ r_{x\text{-axis}}$ ← FIRST
LAST →

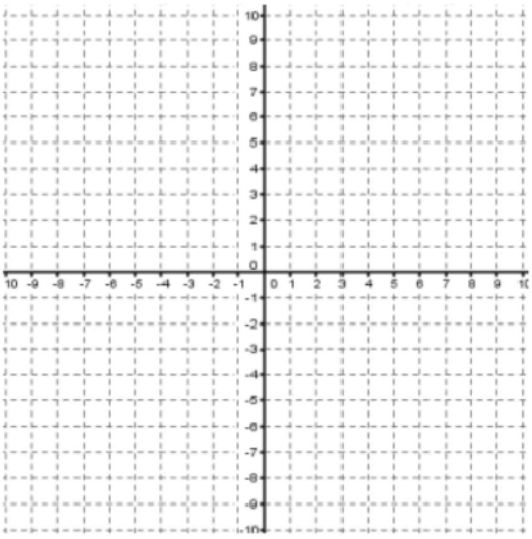
1. Given the point A(-2,3). State the coordinates of the image of A under the composition

$T_{(-3,-4)} \circ r_{x\text{-axis}}$ ✓

A (-2,3)
A' (-2,-3)
A" (-5,-7)



2. On the accompanying grid, graph and label line segment AB, where A is (0,5) and B is (2,0). Under the transformation
A maps to A'', and B maps to B''. Graph and label line segment A''B''. What single transformation would map line segment AB to line segment A''B''?



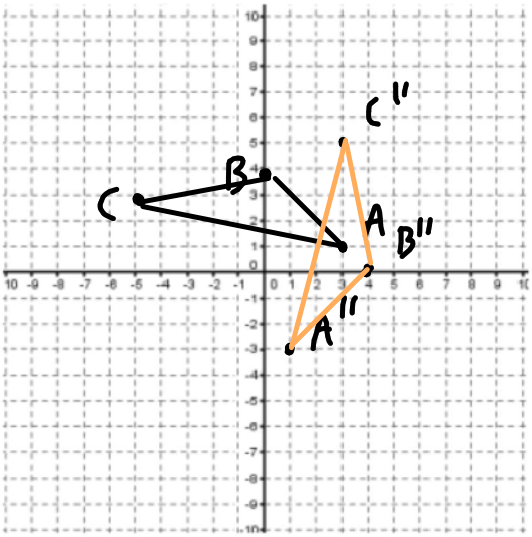
3. On the accompanying grid, graph and label ΔABC with vertices A(3,1), B(0,4), and C(-5,3). On the same grid, graph and label ΔA''B''C'', which is the image of ΔABC after the transformation

$r_{x\text{-axis}} \circ r_{y=x}$

A(3,1)
B(0,4)
C(-5,3)

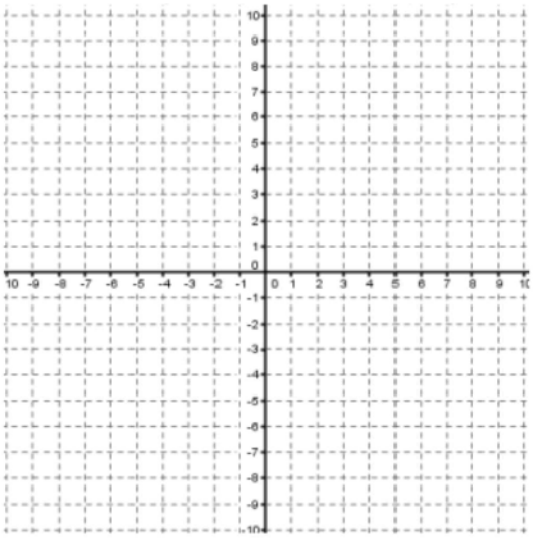
A'(1,3)
B'(4,0)
C'(3,-5)

A''(1,-3)
B''(4,0)
C''(3,5)



4. The coordinates of the vertices of ΔABC are A(1,6), B(2,9), and C(7,10).

a. On the graph to the right, draw and label ΔABC.
b. Graph and state the coordinates of ΔA'B'C', the image of ΔABC after a reflection over the line y=x.
c. Graph and state the coordinates of ΔA''B''C'', the image of ΔA'B'C' after a reflection in the x-axis.
d. Graph and state the coordinates of ΔA'''B'''C''', the image of ΔA''B''C'' after the transformation (x,y) → (x – 5, y + 3).
e. Write b-d as a composition of transformations.



5. Triangle ABC has coordinates A (-**1**, 2), B(6,2) and C(3,4).

a. On the grid to the right, draw and label ΔABC.
b. Graph and state the coordinates of ΔA'B'C', the image of ΔABC after the composition
c. Write a transformation equivalent to