Name: Key

Date:_____ Class Period:_____

Composition of Transformations Notes

A composition of transformations is just a fancy way to represent a combination of transformations.

We see compositions of transformations in function notation.

Composition of Transformations Notation:

$$f(x) = g(h(x))$$

How to perform the transformations:

* -Always perform the transformation that is inside parenthesis first. This is the one you see in the very middle. It is also the first one you see if you read from right to left.

-Next, take the result of the transformation inside parenthesis and apply the next transformation (the one that is to the left of the inside parenthesis).

* if transformations are written Read: L → R or Up to Down

Example: Describe the sequence that you will perform the composition of transformations:

1. $S(x,y) = R_{90°}(R_{y=x}(x,y))$

2nd 1st

Reflection over y=x A'

A' → Rotate 90 CCW A''

2. $A(x,y) = R_{x-axis}(T_{5,-1}(x,y))$

2nd 1st

Translate R5, D1 A'

A' → Reflect over x axis A''

3. $Y(x,y) = T_{4,7}(T_{-3,0}(x,y))$

2nd 1st

Translation L3 Y'

Y' → Translation R4, U7 Y''

4. $W(x,y) = R_{y=-x}(R_{270°}(x,y))$

2nd 1st

Rotation 90 CW W'

W' → Reflection over y=-x W''

5. $H(x,y) = R_{y=2}(R_{x=-3}(x,y))$

2nd 1st

Reflection over x=-3 H'

H' → Reflection over y=2 H''

6. $A(x,y) = T_{-2,-8}(R_{y-axis}(R_{180°}(x,y)))$

3rd 2nd 1st

Rotation 180° CCW A'

A' Reflection over y axis A''

A'' Translate L2 D8 A'''

7. $T(x,y) = R_{x=5}(R_{270°}(R_{90°}(R_{y=x}(R_{-90°}(T_{0.5,-2.3}(x,y))))))$

6th 5th 4th 3rd 2nd 1st

Translate R.5 D2.3 T'

T' Rotate 90 CW T''

T'' Reflected over y=x T'''

T''' Rotate 90 CCW T''''

T'''' Rotate 90 CW T'''''

T''''' Reflect over x=5 T''''''