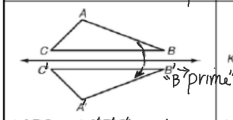
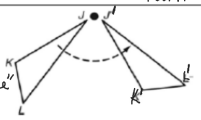
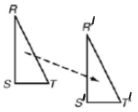
Sept 17

Geometry NOTES 1-7 Name_____ Date_____

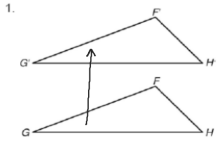
TRANSFORMATIONS IN THE COORDINATE PLANE

In a transformation, each point of a figure is moved to a new position.

Reflection (flip)	Rotation (turn)	Slide Translation
 $\Delta ABC \rightarrow \Delta A'B'C'$ preimage maps onto image	 $\Delta JKL \rightarrow \Delta J'K'L'$	 $\Delta RST \rightarrow \Delta R'S'T'$
A figure is flipped over a line.	A figure is turned around a fixed point.	A figure is slid to a new position without turning.

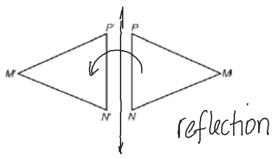
These are called ***rigid motions*** because the shape and size of the figures do not change.

Identify each transformation. Then use arrow notation to describe the transformation.

1. 

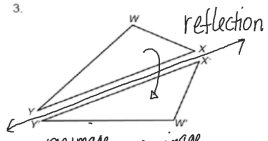
$\Delta FGH \rightarrow \Delta F'G'H'$

translation

2. 

reflection

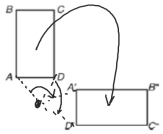
$\Delta PMN \rightarrow \Delta P'M'N'$

3. 

reflection

preimage → image

$\Delta WXY \rightarrow \Delta W'X'Y'$

4. 

rotation

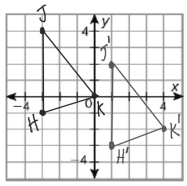
rect $ABCD \rightarrow$ rect $A'B'C'D'$

Draw and label the figure and its image. Then identify the transformation.

5. Triangle HJK has vertices at $H(-3, -1)$, $J(-3, 4)$, and $K(0, 0)$. After a transformation the image of the figure has vertices at $H'(1, -3)$, $J'(1, 2)$, and $K'(4, -2)$.

x, y

x+4, y-2 translation



Find the coordinates of the image after the given translation.

6. preimage: ΔXYZ at $X(-6, 1)$, $Y(4, 0)$, $Z(1, 3)$
rule: $(x, y) \rightarrow (x + 2, y - 5)$

+2 -5

+2 -5 +2 -5

$\Delta X'Y'Z'$

$X'(-4, -4)$ $Y'(6, -5)$ $Z'(3, -2)$