17+6=23

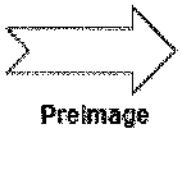
Geometry Group Quiz – Chapter 9 (points) ****SHOW YOUR WORK****

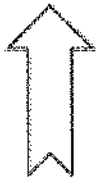
Name: Key **Date:** **Block:**

PART 1: SHORT ANSWER (points) 18

1) Tell whether the transformation appears to be a rigid motion. Explain. (1)

a) (1)





Yes b/c the preimage and image are ≅

b) (1)

No b/c the preimage and image are not ≅.

2) If a transformation maps $GHIJ$ to $G'H'I'J'$, what is the image of I? What is the image of $\overline{GH}$? (1)

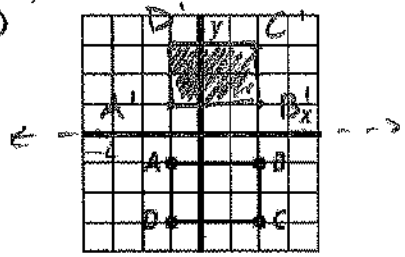
I' $\overline{G'H'}$

3) Point $R(x, y)$ moves 13 units right and 14 units down. What is a rule that describes this translation? (1)

$T_{\langle 13, -14\rangle}(R)$

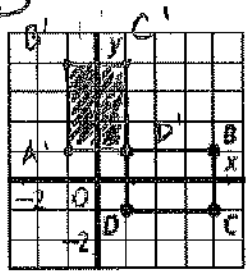
4) Draw the image of each figure for the given transformation.

a) $R_{x\text{-axis}}(ABCD)$ (1)



b) $r_{(90°, O)}(ABCD)$ (1)

$(-y, x)$



5) ΔONM has vertices $O(-4, 2)$, $N(3, 6)$, and $M(0, 8)$. What are the coordinates of the vertices of $(R_{y=1} \circ T_{\langle 3, 0\rangle})(\Delta ONM)$ (2)

(1) T → 3

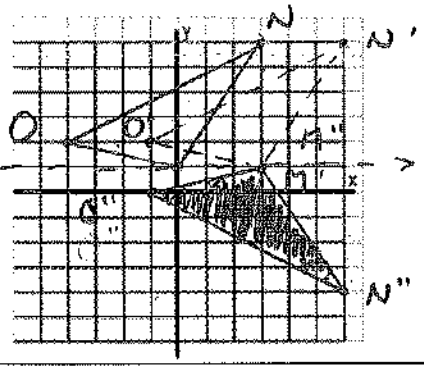
(2) R

$O''(-1, 0)$

$N''(6, -4)$

$M''(3, 1)$

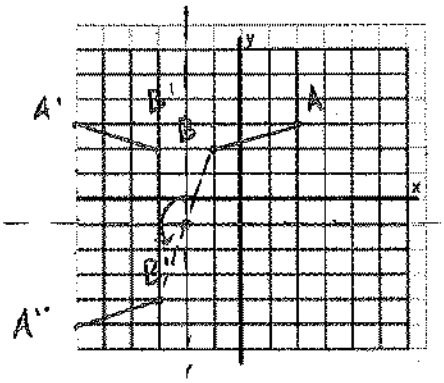
$x = -2$



6) Is the transformation of $\overline{AB}$ with vertices $A(2, 3)$ and $B(-1, 2)$, first across $x = -4$, and then across $y = 2$, a translation or a rotation? For a translation, describe the direction and distance. For a rotation, tell the center of rotation and the angle of rotation. (2) $y = -1$

Rotation

$C(-2, -1)$ $\angle = 180°$



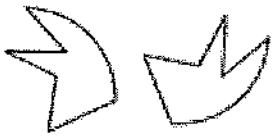
11

7) The point (−1, −1) is the image under the translation $T_{<-5,\,5>}(x, y)$. What is its preimage? **(1 point)** (1)

$T_{\langle -5,5\rangle}$ (Backwards) $(-1+5, -1-5)$

$(4, -6)$

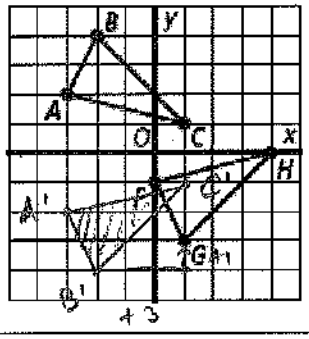
8) In the diagram, is one figure a reflection image, a translation image, or a rotation image of the other? (1) **(1 point)**



Rotation

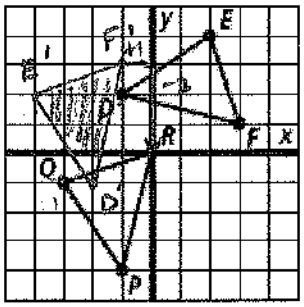
9) Fill-in the composition statement that maps one figure to the other.

a) $\left(T_{\langle 3,1\rangle} \circ R_{x\text{-axis}}\right)(\Delta ABC) = \Delta FGH$ (2)



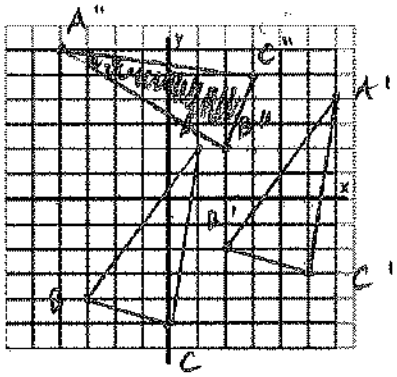
b) $\left(T_{\langle 1,-3\rangle} \circ r_{(90°,O)}\right)(\Delta DEF) = \Delta QPR$ (2)

90° → $(-y, x)$



PART 2: EXTENDED RESPONSE (6 points)

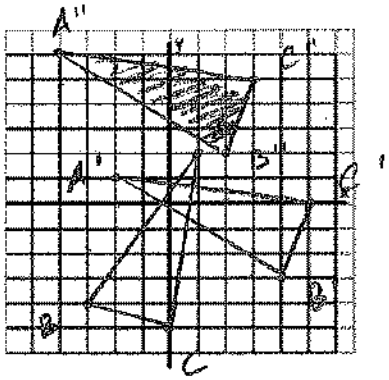
A composition of transformations used to describe a congruence transformation is not unique. Show that the composition $\left(r_{(90°,O)} \circ T_{(5,2)}\right)(\Delta ABC)$ is equivalent to the composition $\left(T_{\langle -2,5\rangle} \circ r_{(90°,O)}\right)(\Delta ABC)$. For ΔABC, use $A(1,2)$, $B(-3,-4)$ and $C(0,-5)$. List the final coordinates for each composition.



(1) $T_{\langle 5,2\rangle}$ R+5 / up 2

(2) $r_{(90°,O)}$ $(-y, x)$

A"(−4, 6) B"(2, 2) C"(3, 5)



(1) $r_{(90°,O)}$ $(-y, x)$

(2) $T_{\langle -2,5\rangle}$

A"(−4, 6) B"(2, 2) C"(3, 5)