Name Key

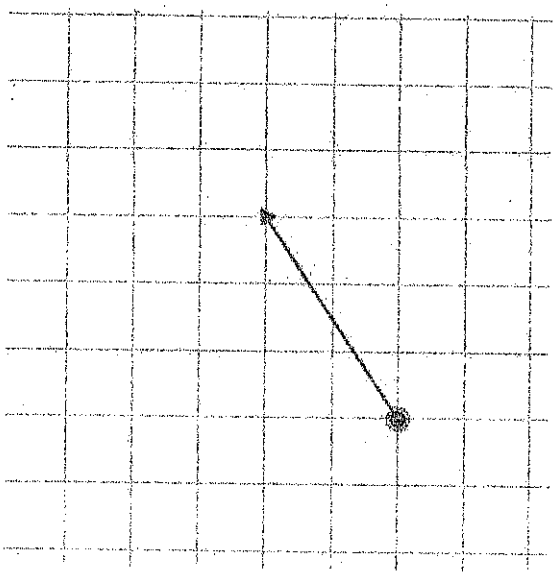
Date _____

Period _____

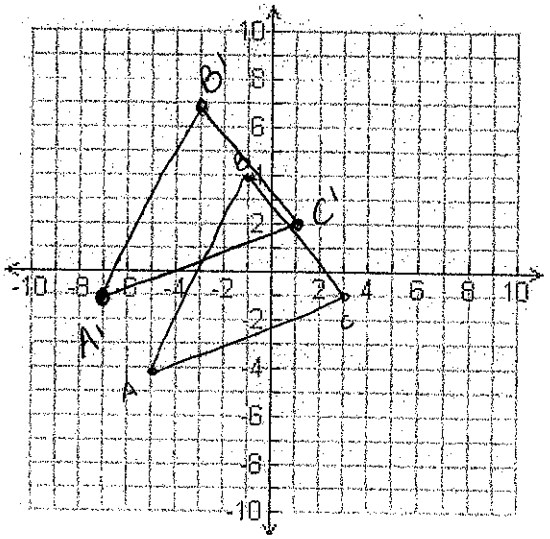
Transformations Midterm Review

1. A) Name the vector below.

<-2, 3>

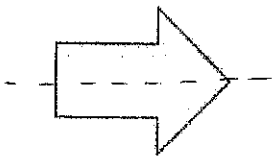


B) Given △ABC with vertices A(-5, -4), B(-1, 4) and C(3, -1), translate the given triangle along the vector in part A to find the image △A'B'C'.



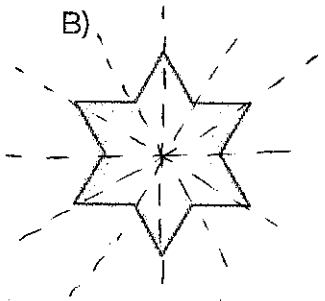
2. Find how many lines of symmetry each of the figures have.

A)



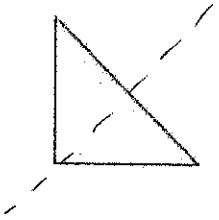
1

B)



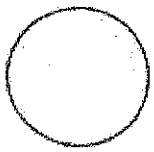
6

C)



1

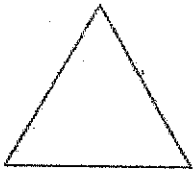
D)



infinite

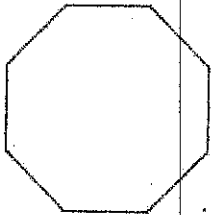
3. Find the angle of rotational symmetry that the following figures have.

A)



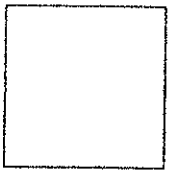
$\frac{360}{3} = 120°$

B)



$\frac{360}{8} = 45°$

C)

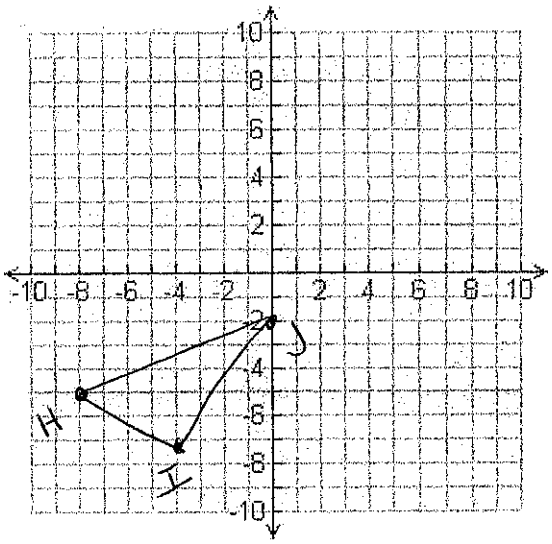


$\frac{360}{4} = 90°$

4. A) Graph △HIJ with vertices H(-8, -5), I(-4, -7), and J(0, -2).

B) Find the coordinates of the image of Find the coordinates of its image △H"I"J" under the following composition of transformations,

$T_{<-2,6>} \circ r_{y\text{-axis}}$.



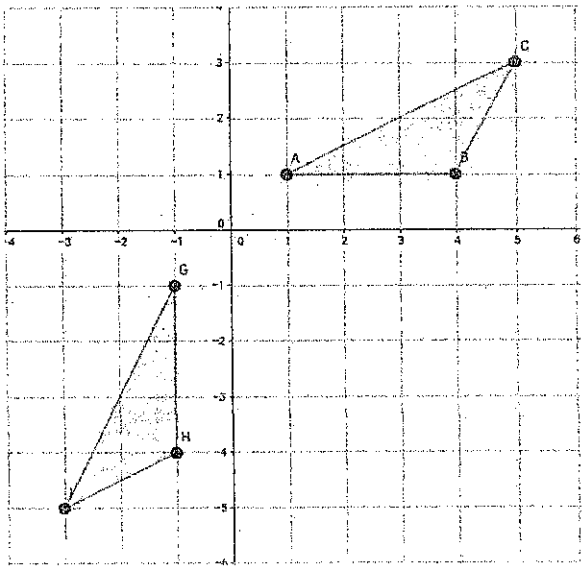
$r_{y\text{-axis}}$ $T_{<-2,6>}$

H $(-8,-5) \rightarrow H'(8,-5) \rightarrow H''(6,1)$

I $(-4,-7) \rightarrow I'(4,-7) \rightarrow I''(2,-1)$

J $(0,-2) \rightarrow J'(0,-2) \rightarrow J''(-2,4)$

5. Find the composition of transformations (rigid motions) that maps △ABC to △GHI.



$r_{y\text{-axis}}$ R_{90}

A $(1,1) \rightarrow (-1,1) \rightarrow G(-1,-1)$

B $(4,1) \rightarrow (-4,1) \rightarrow H(-1,-4)$

C $(5,3) \rightarrow (-5,3) \rightarrow I(-3,-5)$

$R_{90} \circ r_{y\text{-axis}}$

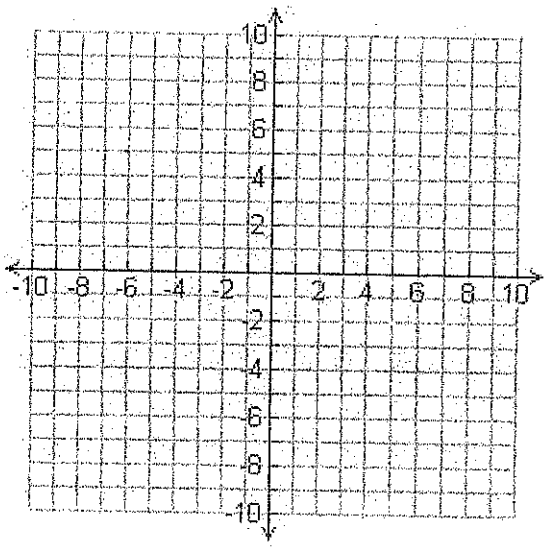
6. Find the image of △ABC with vertices A(6, -2), B(1, 3), and C(7, 7) after a rotation of 270°.

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

$A(6, -2) \rightarrow A'(-2, -6)$

$B(1, 3) \rightarrow B'(3, -1)$

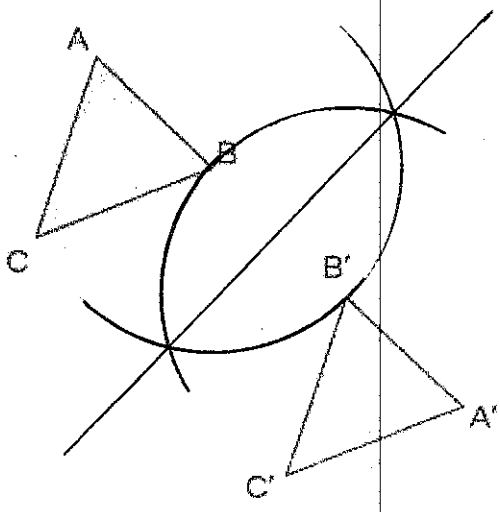
$C(7, 7) \rightarrow C'(7, -7)$



7. A point T(4,-2) is mapped to T'(16, -8) under a dilation. Find the scale factor.

$\frac{\text{image}}{\text{preimage}} \quad \frac{16}{4} = \boxed{4}$

8. Find the line of reflection given a preimage and its image.



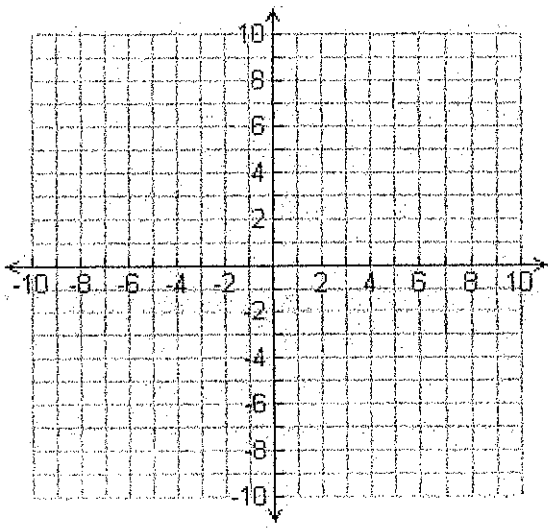
9. Find the image of △ABC with vertices A(3, 3), B(6, -8), and C(9, 0) after a reflection in the line y = - x.

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

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

$B(6,-8) \rightarrow B'(8,-6)$

$C(9,0) \rightarrow C'(0,-9)$



10. Explain why a dilation is not a rigid motion.

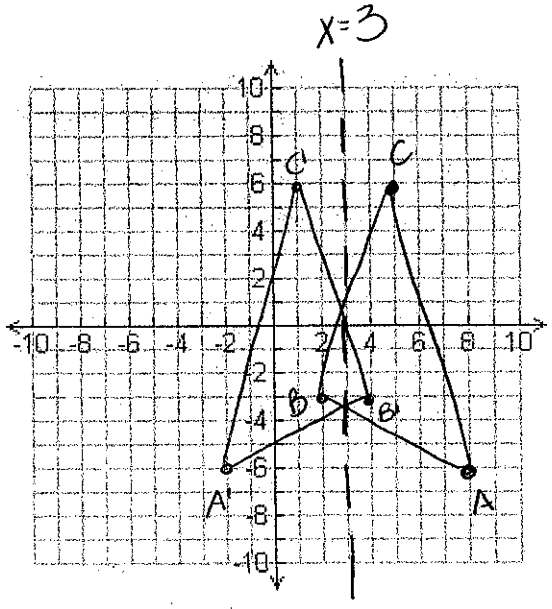
A dilation changes size

11. Reflect △ABC with vertices A(8, -6), B(2, -3) and C(5, 6) in the line x = 3.

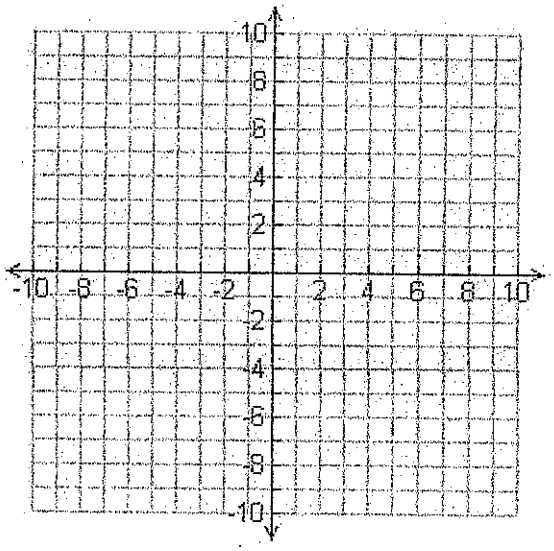
$A'(-2,-6)$

$B'(2,-3)$

$C'(1,6)$



12. Find the image of preimage QRS with vertices Q(-2, 4), R(3, 4) and S(-1, 1) after a dilation with scale factor of 2 with center of dilation at the origin.



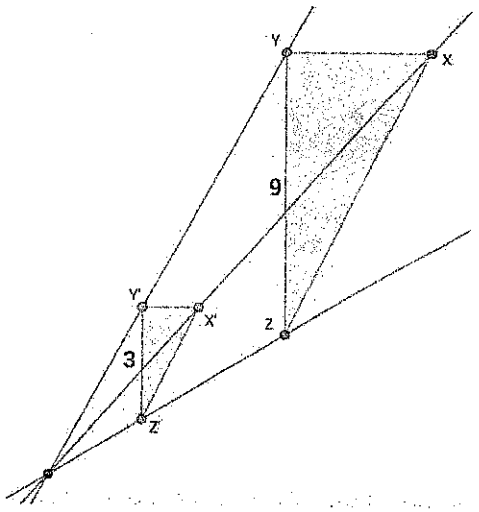
Q'(-4, 8)

R(6, 8)

S(-2, 2)

13. A) Find the scale factor of the dilation.

B) Determine if it is a reduction or an enlargement. Explain why.



$\frac{\text{image}}{\text{preimage}} \quad \frac{3}{9} = \frac{1}{3}$

reduction

$K < 1$

14. Explain the difference between similarity transformations and congruence transformations.

includes a dilation

Not a dilation

15. A) What is the image of point (4, -6) under the following composition of transformations, $R_{90} \circ r_{x\text{-axis}}$.

B) Explain which single transformation is equivalent to the composition described.

$(4, -6) \xrightarrow{r_{x\text{-axis}}} (4, 6) \xrightarrow{R_{90}} (-6, 4)$

$r_{y=x}$