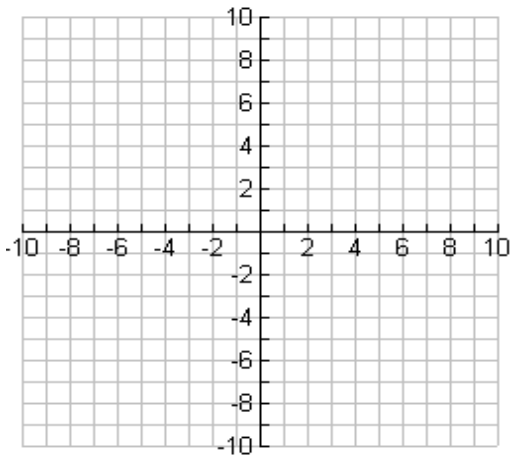
Chapter 3 Review – Transformations **Name:_____**

Review Section:

1. Given ΔABC has vertices at A(0, -4), B(2,-1), C(5,0).

a. Find the vertices of the image of ΔABC under R_{y-axis}



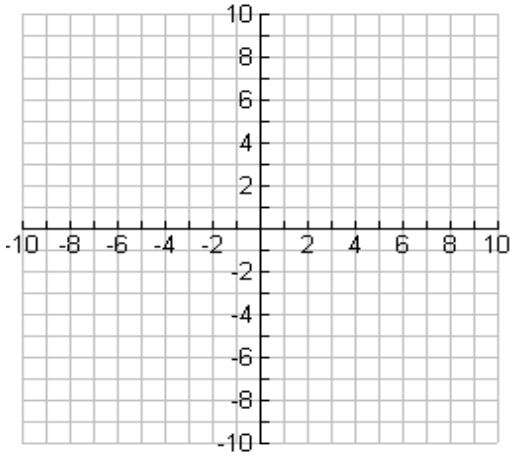
A'(____,____) B'(____,____) C'(____,____)

b. Find the image of the point B under a $r_{(270°,O)}$

c. Find the coordinates of the image of ΔABC under the transformation defined by $T_{(-3,2)}$

A'(____,____) B'(____,____) C'(____,____)

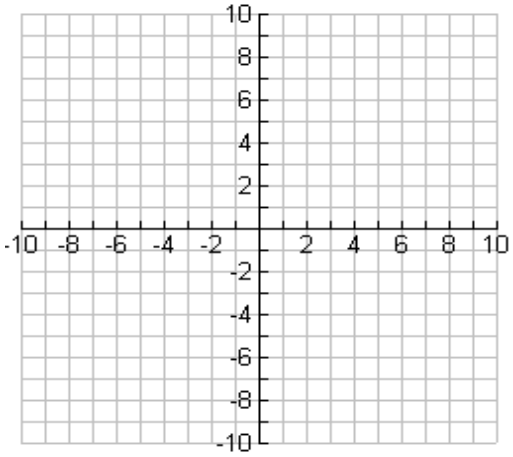
2. Given ΔBAD with B(-4,1), A(3,2), and D(2,-2) use the following transformation $(R_{y=-1} \circ R_{y=x})$



B'(____,____) A'(____,____) D'(____,____)

B"(____,____) A"(____,____) D"(____,____)

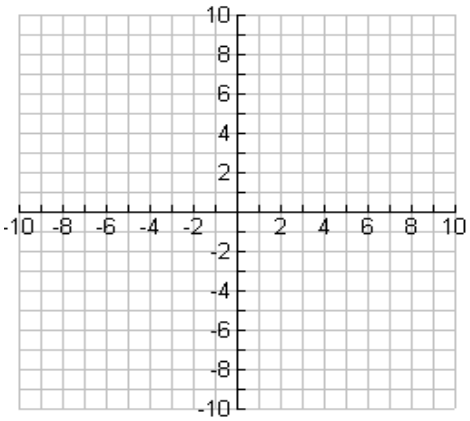
3. Given ΔMLB M(-5,-3), L(-1,-4), and B(1,3) $(T_{(0,3)} \circ R_{X-axis})$



M'(____,____) L'(____,____) B'(____,____)

M"(____,____) L"(____,____) B"(____,____)

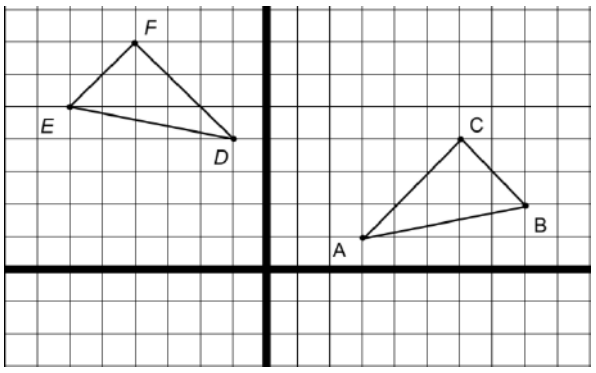
4. Given quadrilateral ESPN with E(-4, -3), S(-2, 2), P(3,1), and N(5, -2), $(R_{x=1} \circ r_{(180°,O)})$



E'(____,____) S'(____,____) P'(____,____) N'(____,____)

E"(____,____) S"(____,____) P"(____,____) N"(____,____)

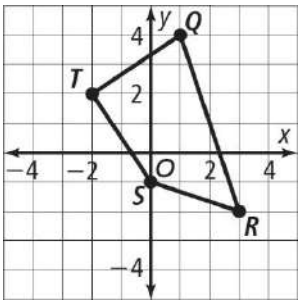
5. Refer to the coordinate grid below. The scale on each axis is one.



a. <u>Describe</u> and write a rule for a composite transformation that will map ΔABC onto ΔDEF.

b. Which point of ΔABC is the image of point *B* under your composite transformation from Part b?

6. Find the coordinates of the vertices of each image.



a. $R_{y=x}(QRST)$

Q'_____

R'_____

S'_____

T'_____

b. $r_{(270°,O)}(QRST)$

Q'_____

R'_____

S'_____

T'_____

c. $T_{\langle -3,-1\rangle}(QRST)$

Q'_____

R'_____

S'_____

T'_____

d. $\left(R_{y=-x} \circ T_{\langle -2,-1\rangle}\right)(QRST)$

Q'_____

R'_____

S'_____

T'_____

7. A reflection over x = - 4 followed by a reflection over x = 6 result in a translation in the direction of
UP DOWN LEFT RIGHT a total distacne _____

8. A reflection over y = 6 followed by a reflection over y = -8 result in a translation in the direction of
UP DOWN LEFT RIGHT a total distacne of _____.

9. If you wanted to translate a shape to the right 20 units, you could reflect over x= - 5 and then x = _____.

10. If you want to translate a shape down 16 unitls, you could reflect over y = -5 and then y = _____.

11. If you want to translate a shape right 24 unitls, you could reflect over x = ___ and then x = 7.

12. Suppose m is the line x = 6 and n is the line x = -2. Write the following composition as one translation $R_m \circ R_n$.

$R_m \circ R_n = T_{\langle \ \rangle}$

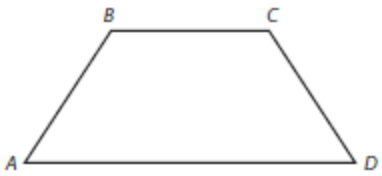
13. Find a translation that has the same effect as the composition of translations below.

$T_{\langle -3,6\rangle}(x, y)$ followed by $T_{\langle -7,-4\rangle}(x, y)$

14. Point $P'(7, -4)$ is the image of point $P(5, -8)$ under a translation. What is the image of $(0, -6)$ under the same translation?

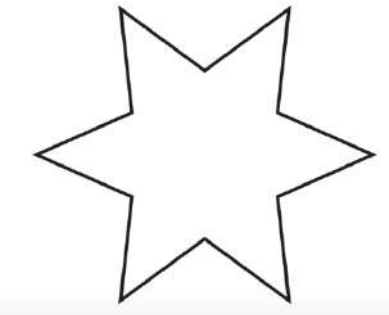
15. The rule $T_{\langle -4, 6\rangle}$ is used for point $(2, -7)$. Which quadrant is the translated point in the coordinate system?

16. In the isosceles trapezoid below, AB = BC = CD = 7 centimeters.



a. Identify all, if any reflection symmetries. If there are reflections, draw or describe the line(s) of reflection. Describe any angle(s) of rotation for the figure.

17. Identify any reflection or/and rotational symmetry. On either, draw the line(s) of symmetry and describe the angle(s) of rotation.



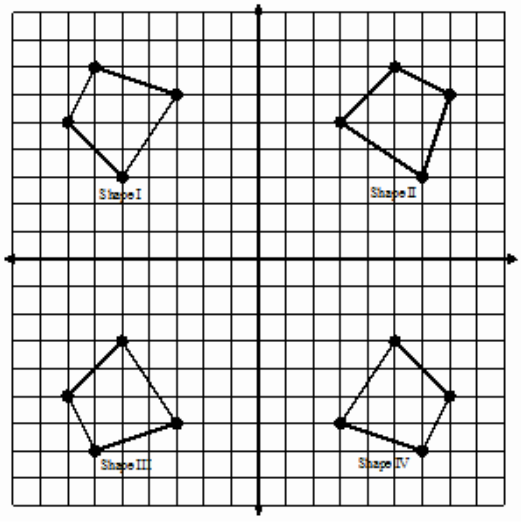
18. Which words have horizontal reflection symmetry?

A) COOKBOOK **B**) BOB **C**) ROB **D)** SEEK

19. Give the coordinates of the image of the point (-6, 3) under the given transformation.

Transformation	New Coordinates
$r_{(90°,O)}$	
$R_{y=-x}$	
$(R_{y=0} \circ R_{y=4})$ What single rule would work as well?	
$(r_{(180°,O)} \circ r_{(270°,O)}$ What single rotation could you do?	
$T_{(8,-5)}$	
$(R_{y=x}) \circ T_{(-2,4)}$	

20. Use the diagram to describe the transformation for each of the following.



a. Pre-image: Shape I
Image: Shape II

b. Pre-image: Shape II
Image: Shape III

c. Pre-image: Shape IV
Image: Shape II

d. Pre-image: Shape I
Image: Shape IV

e. Preimage: Shape I
Image: Shape III