

Chapter 3 Review – Transformations

Name: _____

Review Section:

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

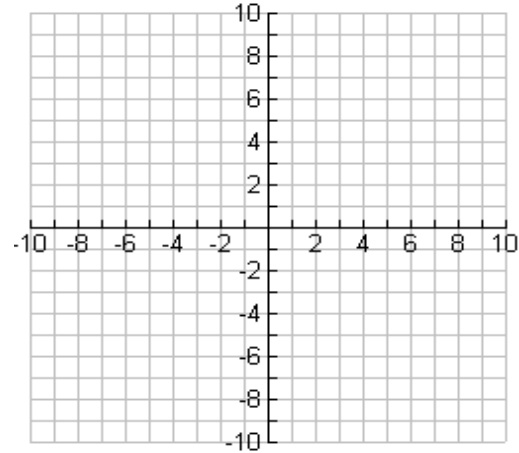
a. Find the vertices of the image of ΔABC under R_{y-axis}

$A'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $B'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $C'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

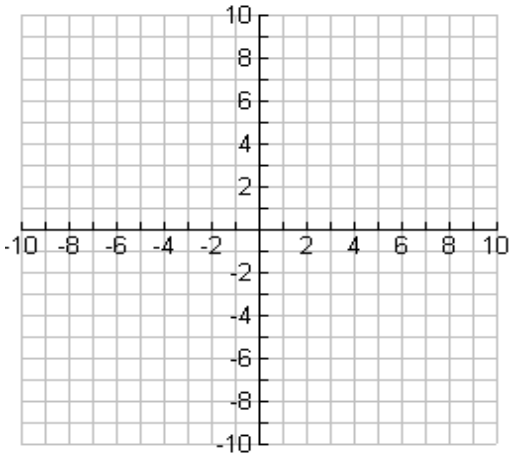
b. Find the image of the point B under a $r_{(270^\circ, 0)}$

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

$A'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $B'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $C'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$



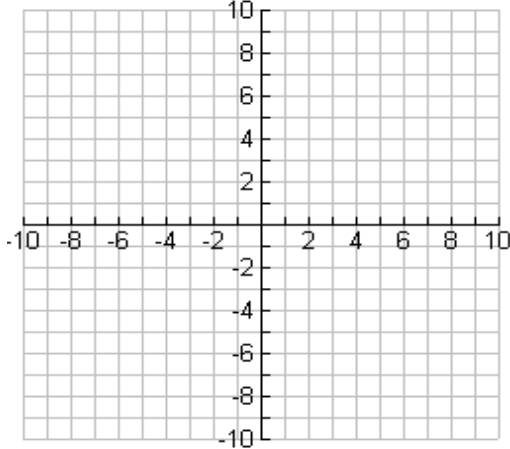
2. Given ΔBAD with $B(-4, 1)$, $A(3, 2)$, and $D(2, -2)$ use the following transformation $(R_{y=-1} \circ R_{y=x})$



$B'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $A'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $D'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$B''(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $A''(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $D''(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

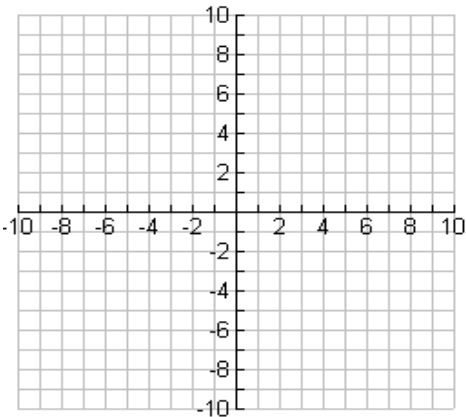
3. Given $\triangle MLB$ $M(-5,-3)$, $L(-1,-4)$, and $B(1,3)$ ($T_{(0,3)} \circ R_{x\text{-axis}}$)



$M'(\underline{\quad}, \underline{\quad})$ $L'(\underline{\quad}, \underline{\quad})$ $B'(\underline{\quad}, \underline{\quad})$

$M''(\underline{\quad}, \underline{\quad})$ $L''(\underline{\quad}, \underline{\quad})$ $B''(\underline{\quad}, \underline{\quad})$

4. Given quadrilateral $ESPN$ with $E(-4, -3)$, $S(-2, 2)$, $P(3,1)$, and $N(5, -2)$, ($R_{x=1} \circ r_{(180^\circ, 0)}$)



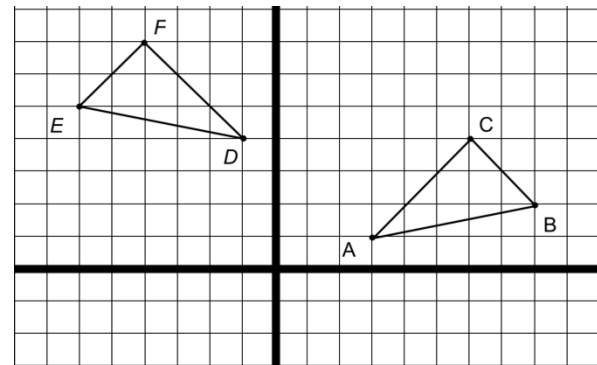
$E'(\underline{\quad}, \underline{\quad})$ $S'(\underline{\quad}, \underline{\quad})$ $P'(\underline{\quad}, \underline{\quad})$ $N'(\underline{\quad}, \underline{\quad})$

$E''(\underline{\quad}, \underline{\quad})$ $S''(\underline{\quad}, \underline{\quad})$ $P''(\underline{\quad}, \underline{\quad})$ $N''(\underline{\quad}, \underline{\quad})$

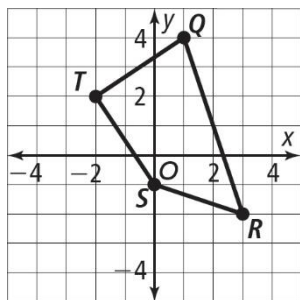
5. Refer to the coordinate grid below. The scale on each axis is one.

a. Describe and write a rule for a composite transformation that will map $\triangle ABC$ onto $\triangle DEF$.

b. Which point of $\triangle ABC$ 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. $r_{(270^\circ, 0)}(QRST)$

Q' _____

R' _____

S' _____

T' _____

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

Q' _____

R' _____

S' _____

T' _____

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

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
 $R_m \circ R_n$.

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

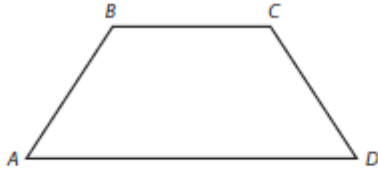
13. Find a translation that has the same effect as the composition of translations below.

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

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?

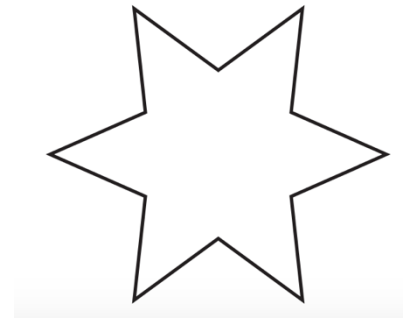
15. The rule $T_{\langle -4, 6 \rangle}$ is used for point $(2, -7)$. Which quadrant is the translated point in the coordinate system?

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
$r_{(90^\circ, 0)}$	
$R_{y=-x}$	
$(R_{y=0} \circ R_{y=4})$ What single rule would work as well?	
$(r_{(180^\circ, 0)} \circ r_{(270^\circ, 0)})$ 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

