

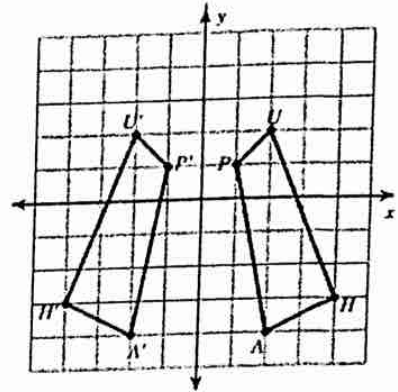
Transformation Unit Review

Name _____ Period _____ Date: _____

Determine the rule described in the transformations below.

1. Which transformation has occurred to quadrilateral AHUP?

- a. rotated 90°
- b. reflected across x - axis
- c. rotated 180°
- d. reflected across y - axis

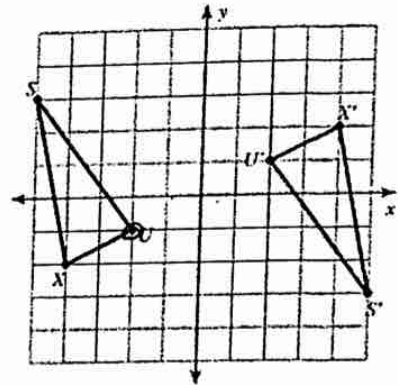


2. Which transformation has occurred to triangle UXS?

- a. rotated 90°
- b. reflected across x - axis
- c. rotated 180°
- d. reflected across y - axis

$$U \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} -2 \\ -1 \end{pmatrix}$$

$$U' \begin{pmatrix} -x \\ -y \end{pmatrix} = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$$

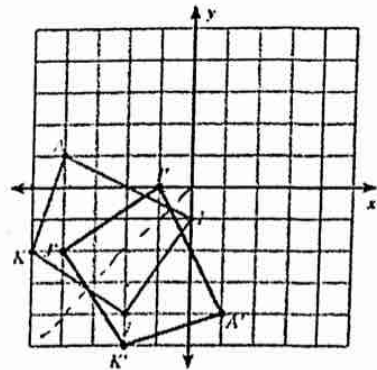


3. Which transformation has occurred to quadrilateral AKJI?

- a. reflected across $y = x$
- b. rotated 270°
- c. reflected across x - axis
- d. rotated 360°

$$K \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} -5 \\ -2 \end{pmatrix}$$

$$K' \begin{pmatrix} -y \\ -x \end{pmatrix} = \begin{pmatrix} -2 \\ -5 \end{pmatrix}$$



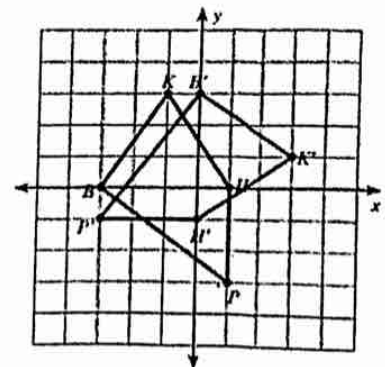
4. Which transformation has occurred to quadrilateral BKHP?

- a. reflected across $y = x$
- b. rotated 270° CCW
- c. reflected across x - axis
- d. rotated 360°

$$P \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 1 \\ -3 \end{pmatrix}$$

$$P' \begin{pmatrix} -y \\ -x \end{pmatrix} = \begin{pmatrix} -3 \\ -1 \end{pmatrix}$$

90° CW
270° CCW



Find the coordinates of the vertices of each figure after the transformations.

5. What would be the vertices of the image if the pre-image had vertices $A(2, -2), B(1, 2), C(3, 3), D(5, 2)$ and they were rotated 180° CW about the origin?

$-x, -y$

$(-2, 2) (-1, 2) (-3, 3) (-5, 2)$

a. $A'(2, -2), B'(-1, 2), C'(-3, 3), D'(-5, 2)$

b. $A'(-2, 2), B'(-1, -2), C'(-3, -3), D'(-5, -2)$

c. $A'(-2, -2), B'(-1, -2), C'(-3, -3), D'(-5, 2)$

d. $A'(2, 2), B'(-1, -2), C'(-3, 3), D'(-5, 2)$

6. What would be the vertices of the image if the pre-image had vertices $A(2, -2), B(1, 2), C(3, 3), D(5, 2)$ and they were rotated 270° CCW about the origin?

90° CW $y, -x$

$(-2, -2) (2, -1) (3, -3) (2, -5)$

a. $A'(2, -2), B'(-1, 2), C'(-3, 3), D'(-5, 2)$

b. $A'(-2, 2), B'(-1, -2), C'(-3, -3), D'(-5, -2)$

c. $A'(-2, -2), B'(2, -1), C'(3, -3), D'(2, -5)$

d. $A'(2, -2), B'(2, 1), C'(3, -3), D'(2, 5)$

7. On the graph to the right draw and label the triangle with vertices $A(-4, 5), B(3, 2), C(-1, -4)$ after all of the transformations listed below are done. DRAW all the images.

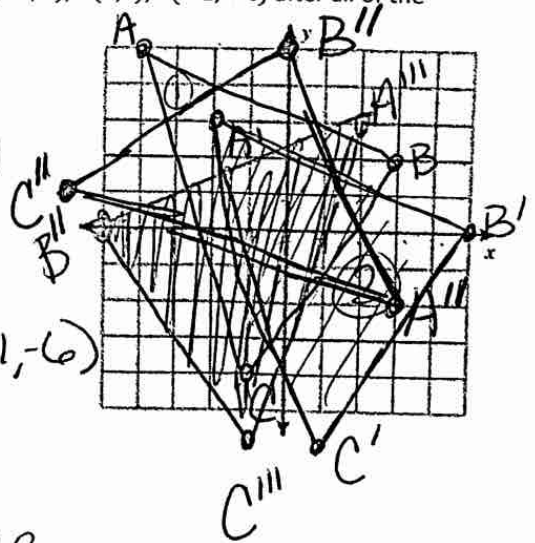
1. Translated 2 unit right and 2 units down

2. Reflect across $y = x$

3. Rotate 90 degrees CCW about the origin

$-y, x$
 $-y, x$

$A'(-2, 3) \rightarrow (3, -2)$
 $B'(5, 0) \rightarrow (0, 5)$
 $C'(1, -6) \rightarrow (-6, 1)$
 $A''(2, 3) \quad B''(-5, 0) \quad C''(-1, -6)$



Vocabulary review:

8. List important Characteristics of each.

- a) Rigid Transformation/Isometry

Congruent

- b) Translations

Slide

- c) Reflections

Flip

- d) Rotations

turn

- e) Dilations

Enlarge/shrink

- f) Composition for Transformations

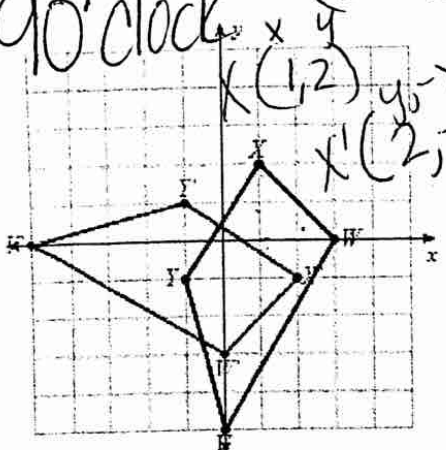
multiple-transformations

9. What is the **difference** between two figures that are congruent and two figures that are similar?

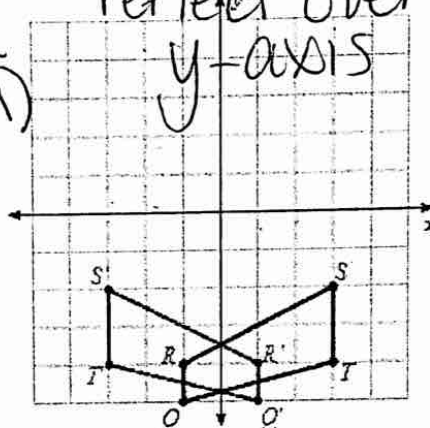
Congruent has same shape & size
 Similar has same shape & angle msr.

10. Name the ordered pair rule that transforms each figure into its image.

Rule: $(x, y) \rightarrow (y, -x)$
 90° clockwise

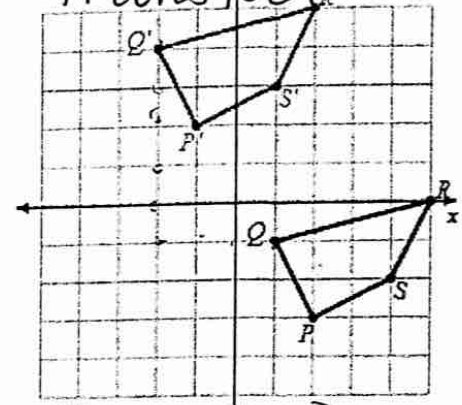


Rule: $(x, y) \rightarrow (-x, y)$
 reflect over y-axis



$S(3, -2)$
 $S'(-3, -2)$

Rule: $(x, y) \rightarrow (x-3, y+5)$
 translation

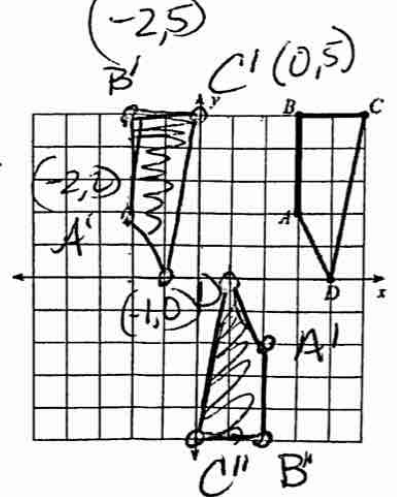
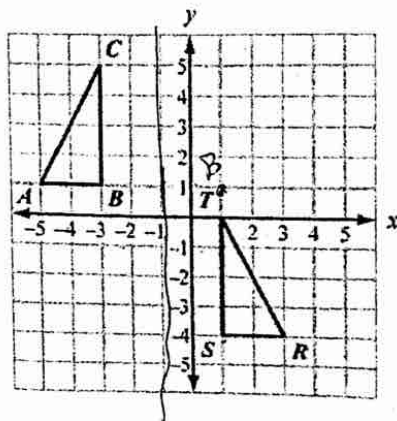


$P(2, -3)$
 $P'(-1, 2)$

Complete the following transformations on the figure:

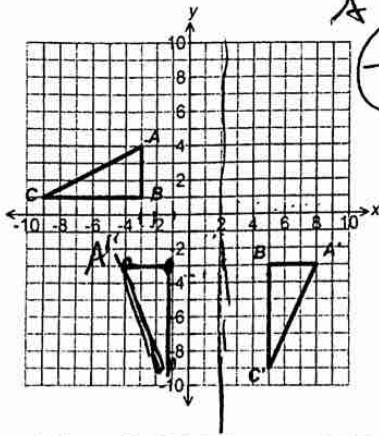
11. Translate $ABCD$ by the rule $(x, y) \rightarrow (x - 5, y)$, then rotate the figure 180° .

12. Which sequence of transformations maps $\triangle ABC$ to $\triangle RST$?



- A. Reflect $\triangle ABC$ across the line $x = -1$. Then translate the result 1 unit down.
- B. Reflect $\triangle ABC$ across the line $x = -1$. Then translate the result 5 units down.**
- C. Translate $\triangle ABC$ 6 units to the right. Then rotate the result 90° clockwise about the point $(1, 1)$.
- D. Translate $\triangle ABC$ 6 units to the right. Then rotate the result 90° counterclockwise about the point $(1, 1)$.

12. Describe the sequences required for the following transformation below:



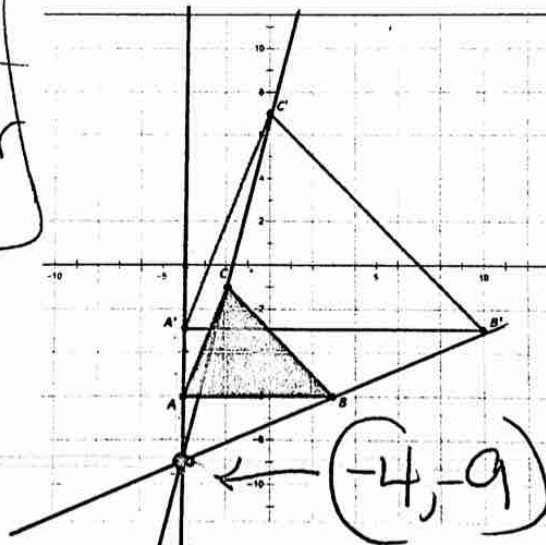
rotate 90ccw $-y, x$
 $(-3, 4)$
 $-4, 3$
 then
 reflect over
 $x=2$

13. Quadrilateral ABCD is rotated 90° counterclockwise (or 270° clockwise) about the origin. Name the new coordinates.

Original Coordinates	A (1, 3)	B (3, 4)	C (6, 5)	D (1, 5)
New Coordinates	$-3, 1$	$-4, 3$	$-5, 4$	$-5, 1$

14. Find the Center of Dilation and the Scale Factor for the following:

a)
 Scale factor
 2



A(0, 3) (0, 6)
 B(7, 3) (14, 6)

15. Find the coordinates of the vertices of the figure after a dilation of $k=2$ centered at the point (1, -3) and graph the image.

$x(-2, 4) \rightarrow x'(-5, 11)$

$y(-6, 1) \rightarrow y'(-13, 5)$

$z(-4, -5) \rightarrow z'(-9, -7)$

$x(-2, 4)$
 $-1 + 3$
 $(-3, 7)$
 $(2 \cdot -3, 2 \cdot 7)$
 $(-6, 14)$
 $+1 - 3$
 $-5, 11$

