

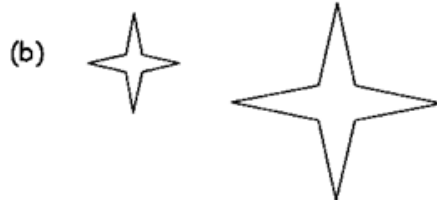
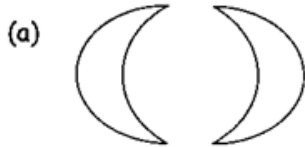
# TRANSFORMATIONS QUIZ REVIEW

*Geometry*

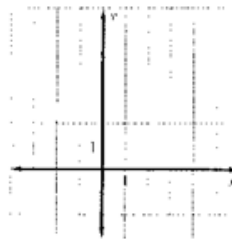
Name \_\_\_\_\_

Date \_\_\_\_\_ Hr \_\_\_\_\_

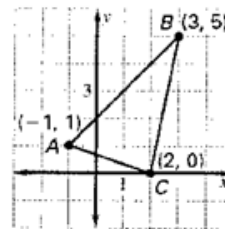
1. What type of transformation is shown? Is the transformation an isometry? Why or why not?



2. The preimage of a quadrilateral has the coordinates  $A(-1, 2)$ ,  $B(-3, 2)$ ,  $C(-3, 5)$ ,  $D(-1, 5)$ . Graph the preimage and the image on the given coordinate plane using the rule:  $(x, y) \rightarrow (x + 3, y - 4)$ .



3. Find the coordinates of the image of triangle  $ABC$  after the translation  $(x, y) \rightarrow (x - 4, y + 2)$



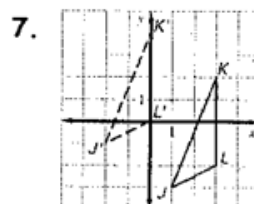
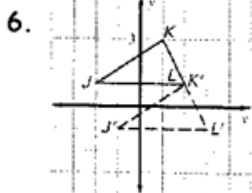
$A' =$  \_\_\_\_\_  $B' =$  \_\_\_\_\_  $C' =$  \_\_\_\_\_

**Coordinate notation:**  $(x, y) \rightarrow (x \pm a, y \pm b)$

For #4-6, use coordinate notation to write a rule for the translation.

4. 6 units to the right, 3 units down

5. 1 unit to the left, 4 units up

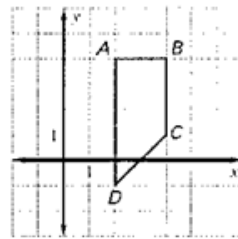


Graph the image of the figure that is graphed using the given line of reflection.

8.  $y = x$

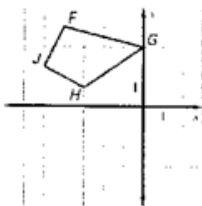
Rule:  $(x, y) \rightarrow (\underline{\quad}, \underline{\quad})$

Pre-image	Image

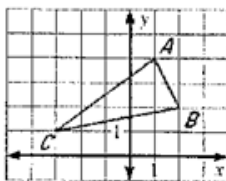


For #9-11, graph the image of the figure after a reflection in the given line.

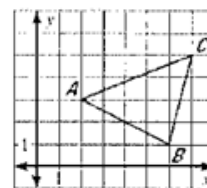
9.  $x = -2$



10.  $y$ -axis

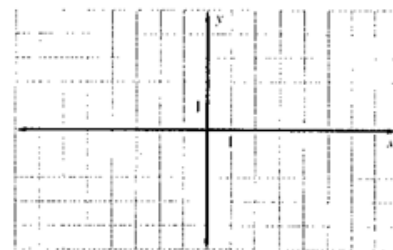


11.  $y = 4$

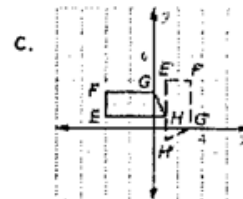
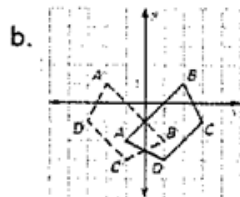


12. The endpoints of  $\overline{CD}$  are  $C(1, 1)$  and  $D(2, 4)$ . A reflection of  $\overline{CD}$  results in the image  $\overline{MN}$ , with coordinates  $M(-1, 1)$  and  $N(-2, 4)$ .

What is the line of reflection? \_\_\_\_\_

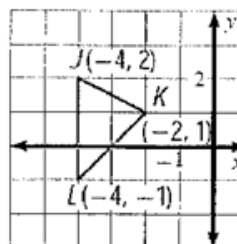


13. Give the degree of rotation ( $90^\circ$ ,  $180^\circ$ , or  $270^\circ$  CCW) from the preimage to its image.



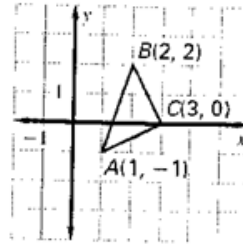
14. What are the coordinates of the vertices of the image of the triangle after a  $270^\circ$  (CCW) rotation about the origin?

- A  $J(1, 2), K'(4, 2), L'(1, 4)$   
 B  $J(2, 1), K'(4, 2), L'(1, 4)$   
 C  $J(4, 2), K'(2, 1), L'(4, -1)$   
 D  $J(2, 4), K'(1, 2), L'(-1, 4)$



15. What are the coordinates of the vertices of the image of  $\triangle ABC$  after a  $90^\circ$  counterclockwise rotation about the origin?

- A.  $A'(-1, 1), B'(2, -2), C'(0, -3)$
- B.  $A'(1, 1), B'(2, -2), C'(0, 3)$
- C.  $A'(-1, 4), B'(2, 2), C'(0, 1)$
- D.  $A'(1, 1), B'(-2, 2), C'(0, 3)$

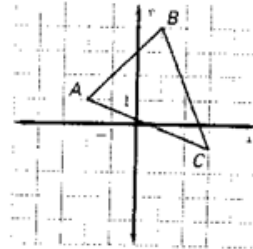


16. Find the coordinates & draw the image of the figure rotated  $90^\circ$  counterclockwise.

$90^\circ: (x, y) \rightarrow (\underline{\quad}, \underline{\quad})$

in words:

Pre-image	Image

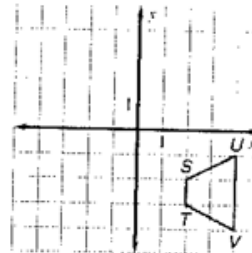


17. Find the coordinates & draw the image of the figure rotated  $180^\circ$  counterclockwise.

$180^\circ: (x, y) \rightarrow (\underline{\quad}, \underline{\quad})$

in words:

Pre-image	Image

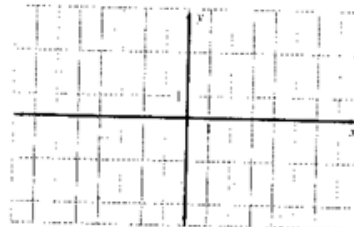


Find the coordinates of the image of point  $P(-6, 1)$  after the glide reflection.

18. Translation:  $(x, y) \rightarrow (x + 4, y + 1)$   
 Reflection: in the  $x$ -axis

$P'(\underline{\quad}, \underline{\quad})$

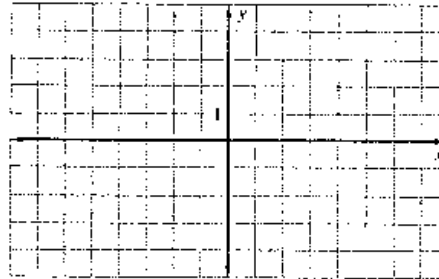
$P''(\underline{\quad}, \underline{\quad})$



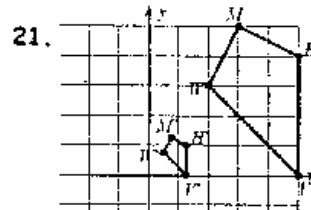
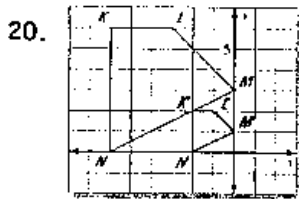
19. The vertices of  $\triangle STU$  are  $S(1, -2)$ ,  $T(5, -2)$ , and  $U(1, -4)$ . Find the coordinates of the image of  $\triangle STU$  after a composition of the transformations in the order they are listed.

Translation:  $(x, y) \rightarrow (x - 3, y + 1)$   
 Rotation:  $90^\circ$  about the origin

Pre-image	Image	Image



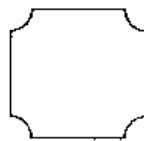
Find the scale factor of the dilation.



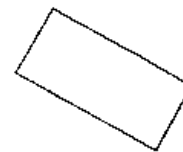
22. What are the coordinates of the image of the point  $P(-4, 1)$  after the given composition?  
 $(x, y) \rightarrow (x + 5, y + 1)$   
 $(x, y) \rightarrow (2x, 2y)$

- (F)  $(-3, 1)$       (G)  $(2, 4)$   
 (H)  $(3, 1)$       (J)  $(4, 2)$

23. Draw in all lines of symmetry of the figure: a.



b.



24. Determine whether the figure has rotational symmetry.

a.



b.



c.



25. Name three capital letters that have a rotational symmetry.

1



2

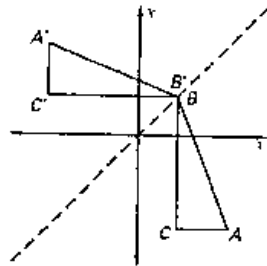
3



Mixed review.

26. What type of transformation is shown in the diagram?

- (A) slide
- (B) translation
- (C) reflection
- (D) rotation



27. Given a triangle with vertices  $A(4, -1)$ ,  $B(-3, 0)$ , and  $C(7, 2)$ , which points represent a reflection of  $\triangle ABC$  in the  $y$ -axis?

- (A)  $A(-4, -1)$ ,  $B(3, 0)$ ,  $C(-7, 2)$
- (B)  $A(4, 1)$ ,  $B(-3, 0)$ ,  $C(7, -2)$
- (C)  $A(-4, 1)$ ,  $B(3, 0)$ ,  $C(-7, -2)$
- (D)  $A(-1, 4)$ ,  $B(0, -3)$ ,  $C(2, 7)$

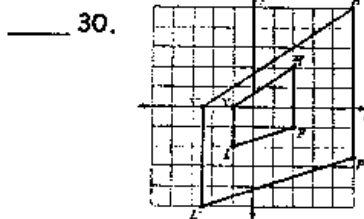
28.  $\triangle ABC$  has vertices:  $A(1,3)$ ,  $B(0,1)$  and  $C(4,0)$ . Under a translation,  $A'$  is located at  $(4,4)$ . Under the same translation,  $C'$  is located at:

- a.  $(7, 1)$
- b.  $(3, 2)$
- c.  $(5, 3)$
- d.  $(1, -1)$

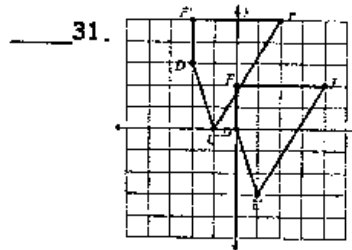
29. Which transformation is *not* an isometry?

- (A) Translation
- (B) Reflection
- (C) Rotation
- (D) Dilation

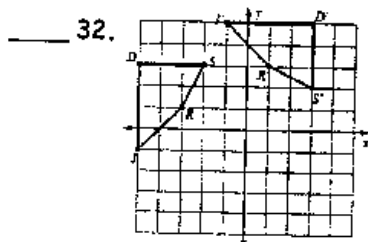
Describe the transformation going from the preimage (ex:  $ABC$ ) to the image (ex:  $A'B'C'$ ).



- A) translation: 4 units left and 1 unit down
- B) dilation of  $\frac{1}{4}$
- C) dilation of 2.5
- D) dilation of 1.5



- A) reflection across the  $y$ -axis
- B) reflection across the  $x$ -axis
- C) translation: 3 units left and 2 units down
- D) translation: 2 units left and 3 units up



- A) reflection across the  $y$ -axis
- B) translation: 3 units right
- C) rotation  $270^\circ$  counterclockwise about the origin
- D) reflection across the  $x$ -axis