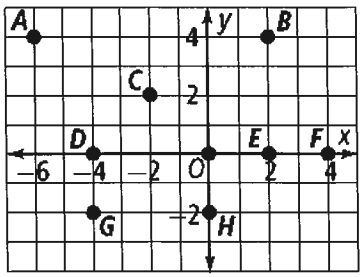
Name Answers Date

Chapter 9 Review

In the following, refer to the figure at the right.



1) What is the image of C under $(x, y) \rightarrow (x + 4, y - 2)$?

E

2) What rule describes the translation $F \rightarrow B$?

$(x,y) \rightarrow (x-2, y+4)$

3) What is the image of H under the vector component $\langle -2, 4 \rangle$?

C

4) What rule describes the translation $D \rightarrow H$?

$(x,y) \rightarrow (x+4, y-2)$

5) What is the image of C under vector component $\langle -2, -4 \rangle$?

G

6) What rule describes the translation $B \rightarrow A$?

$(x,y) \rightarrow (x-8, y)$

Find the coordinates of the image of each figure under the given translation.

7) ΔABC with vertices $A(-3, 4)$, $B(-1, -2)$, $C(1, 5)$; translation: $(x, y) \rightarrow (x - 2, y + 5)$

$A'(-5,9)$, $B'(-3,3)$, $C'(-1,10)$

8) ΔPQR with vertices $P(-9, -4)$, $Q(-5, 1)$, $R(2, 8)$; translation: $(x, y) \rightarrow (x - 6, y - 7)$

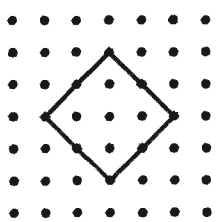
$P'(-15,-11)$, $Q'(-11,-6)$, $R'(-4,1)$

9) A triangle has vertices at $A(-3, -1)$, $B(-2, 2)$, $C(-1, -2)$. Following a transformation, the triangle's image has vertices at (1, 1) and (2, 4). If the transformation is an isometry, what are the coordinates of the image's third vertex?

(3,0)

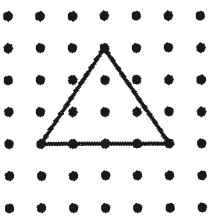
State what kind of symmetry each figure has.

10)

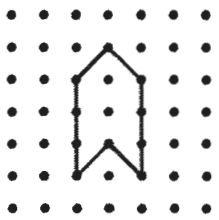


Linear + Rotational

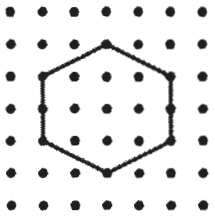
11)



Linear

12) 

Linear

13) 

Linear & Rotational

14) Armando is going to draw a triangle that he will put on his backpack.

a. If the triangle has just one line of symmetry, what kind of triangle must it be?

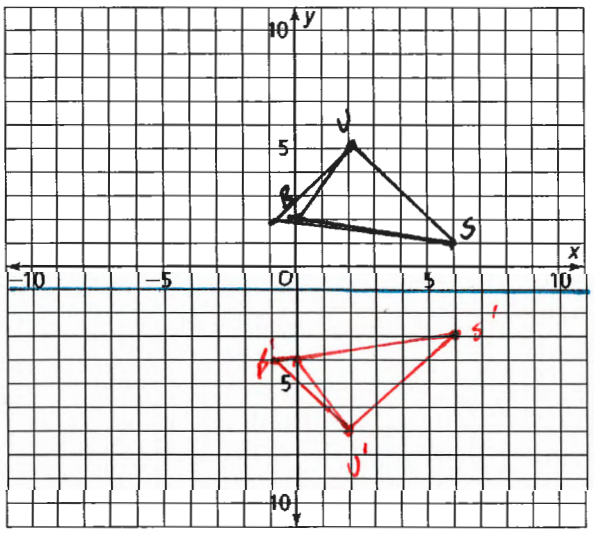
Isosceles

b. If the triangle has two lines of symmetry, what kind of triangle must it be?

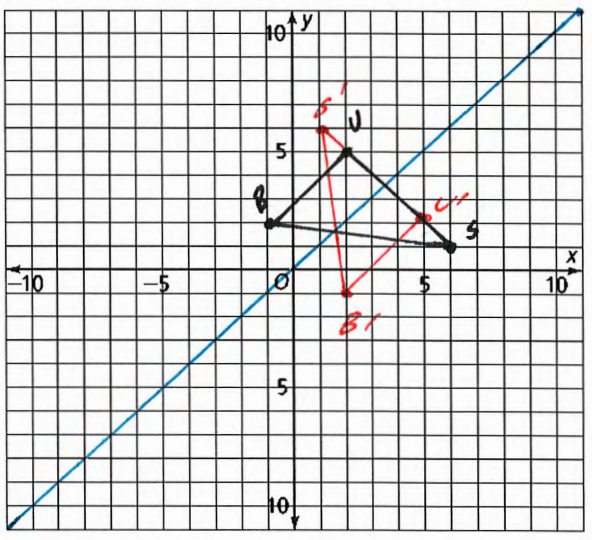
Equilateral

Given points $S(6, 1)$, $U(2, 5)$, and $B(-1, 2)$, draw ΔSUB and its reflection image across each line.

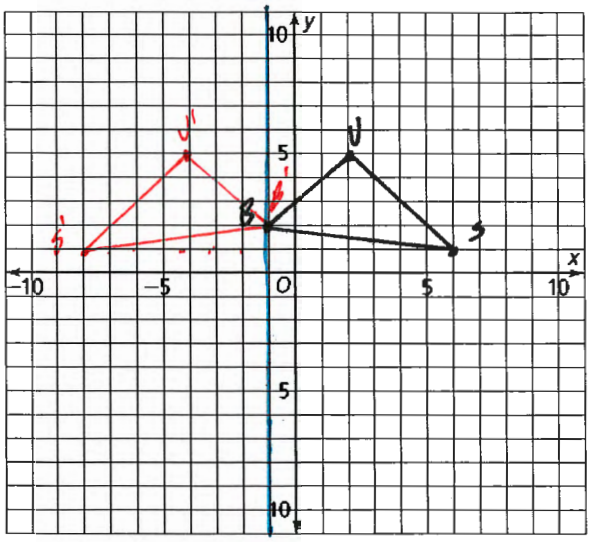
15) $y = -1$



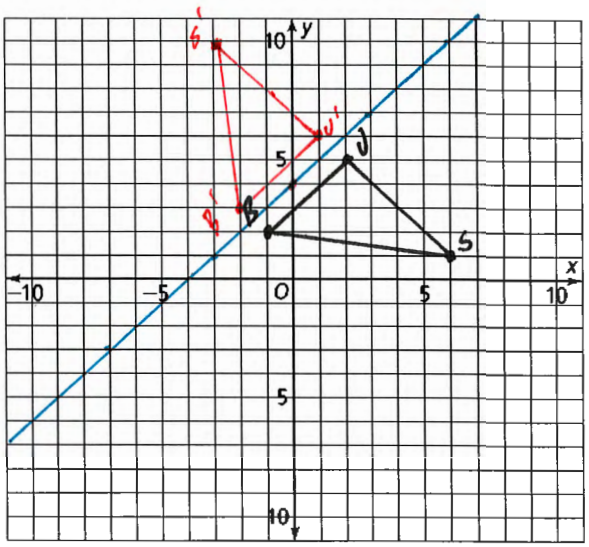
16) $y = x$



17) $x = -1$

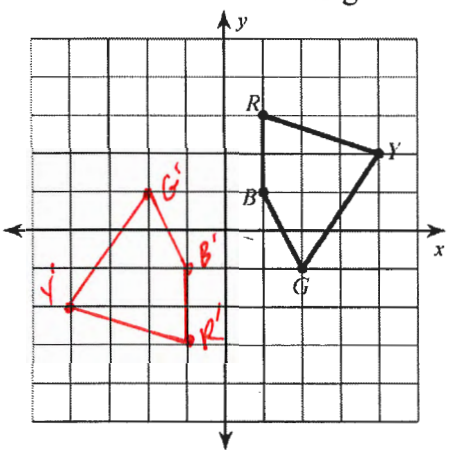


18) $y = x + 4$

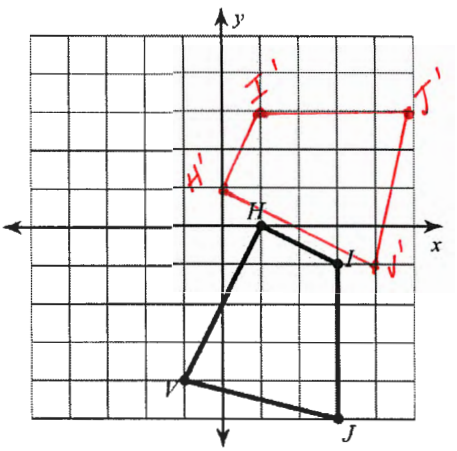


Graph the image of the figure using the given transformation.

19) rotation 180° about the origin

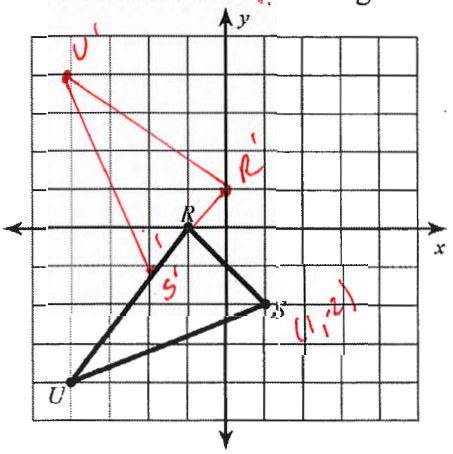


20) rotation 90° counter-clockwise about the origin

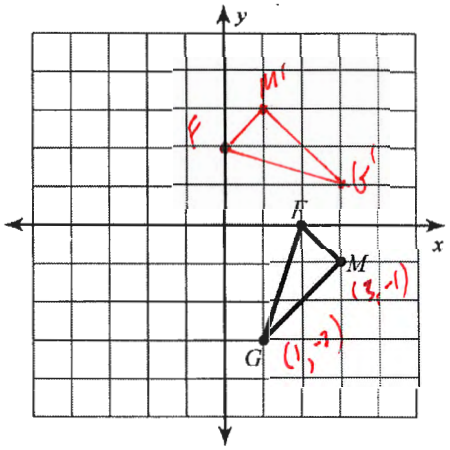


Find the coordinates of the image of the figure using the given transformation.

21) 90° clockwise about the origin



22) rotation 270° clockwise about the origin



Find the coordinates of the image of the figure using the given transformation.

23) rotation 180° about the origin
$L(-3, 2)$, $G(-3, 5)$, $J(1, 5)$

$L'(3,-2)$, $G'(3,-5)$, $J'(-1,-5)$

24) rotation 90° clockwise about the origin
$K(1, 0)$, $G(4, 1)$, $Z(3, -4)$

$K'(0,-1)$, $G'(1,-4)$, $Z'(-4,-3)$

A dilation has center (0, 0). Find the image of each point for the given scale factor.

25) $D(2, 2)$; 3

$D'(6,6)$

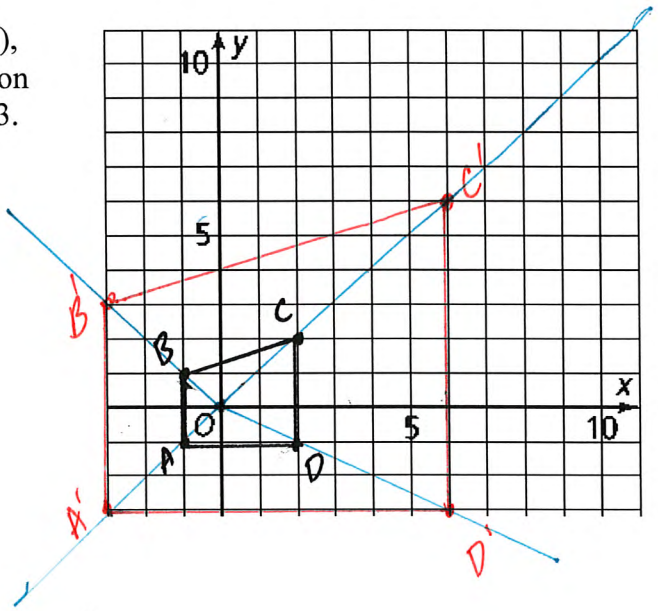
26) $X(2, -4)$; 0.25

$X'(\frac{1}{2},-1)$

27) $C(4, 7)$; $\frac{2}{7}$

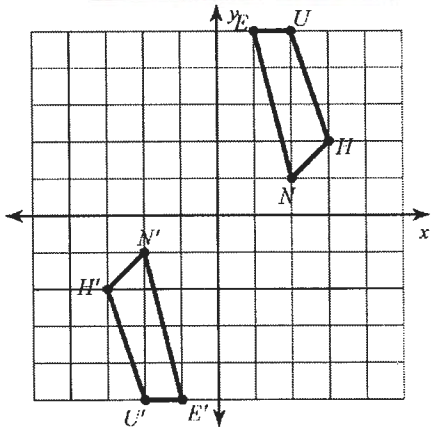
$C'(\frac{8}{7}, 2)$

28) The vertices of trapezoid $ABCD$ are $A(-1, -1)$, $B(-1, 1)$, $C(2, 2)$, and $D(2, -1)$. Draw the trapezoid and its dilation image for a dilation with center (0, 0) and scale factor 3.

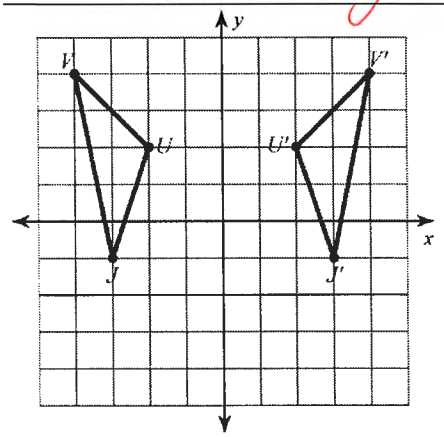


For each of the following, write a rule to describe each transformation.

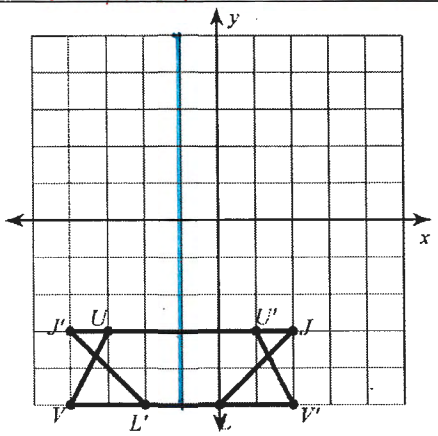
29) Rotation 180°



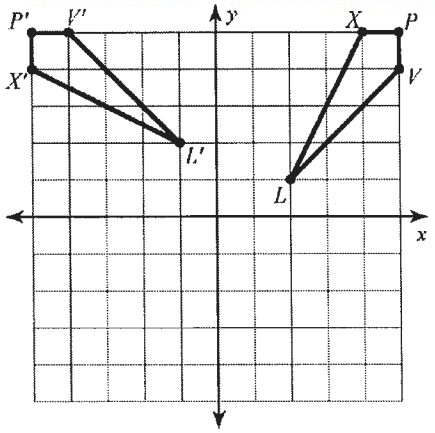
30) Reflection over y-axis



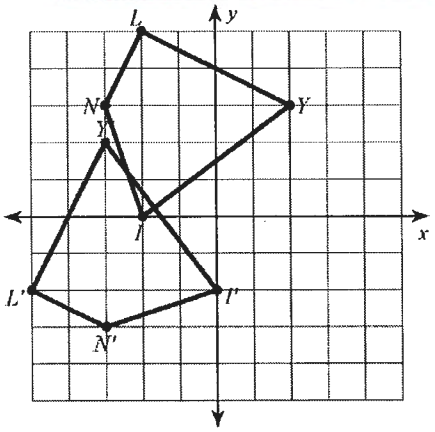
31) Reflection over $x=-1$



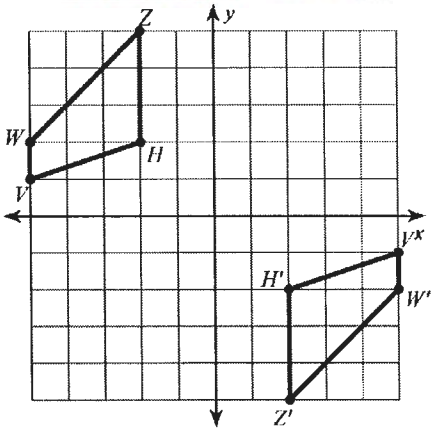
32) Rotation 90° counter-clockwise



33) Rotation 90° counter-clockwise

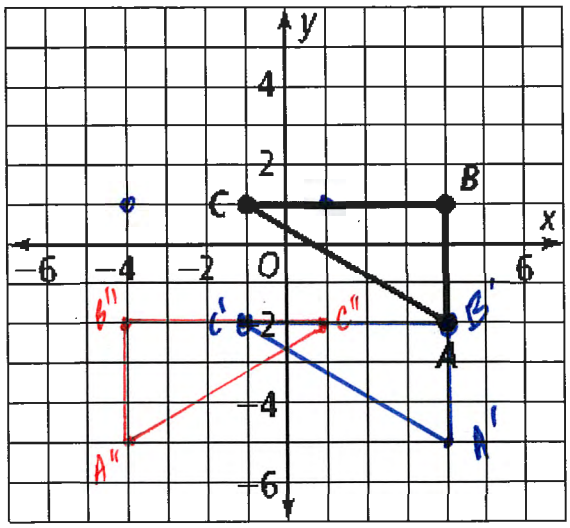


34) Rotation 180°

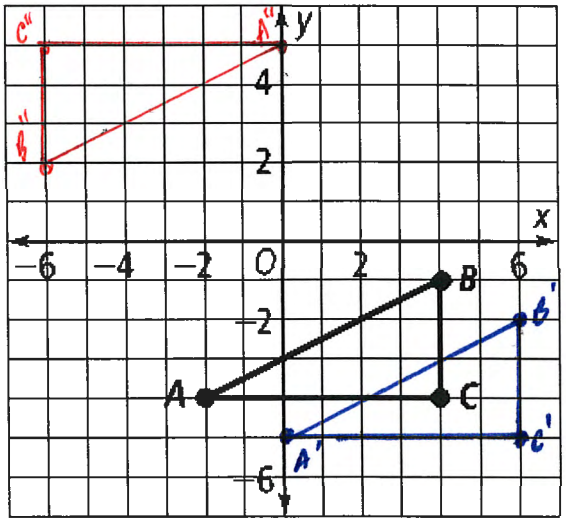


In the following, graph each with the following composition of transformations.

35) Translation: $(x, y) \rightarrow (x, y-3)$
Reflection: $x = 0$



36) Translation: $(x, y) \rightarrow (x+2, y-1)$
Rotation: 180 degrees



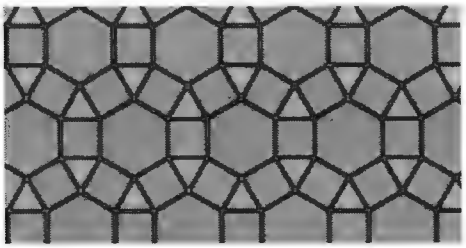
37) What shapes would produce a regular tessellation?

- Equilateral triangle
- Square
- Regular Hexagon

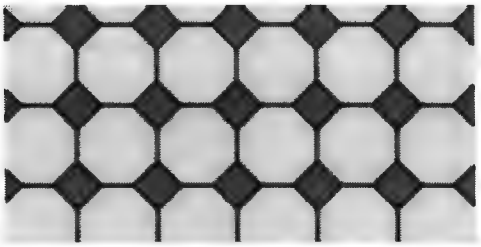
38) Explain why a regular pentagon would not produce a regular tessellation.

The measure of one angle is 108°, which does not divide evenly into 360°: there is no way to fit several shapes together with no gaps or overlaps.

What is the numerical name of the tessellation?

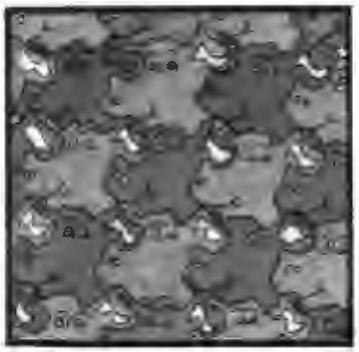
39) 

3.4.6.4

40) 

4.8.8

Determine the kind of tessellation is the following:

41) 

Translational Tessellation

42) 

Glide Reflection Tessellation

43) 

Rotation Tessellation

44) 

Translational tessellation