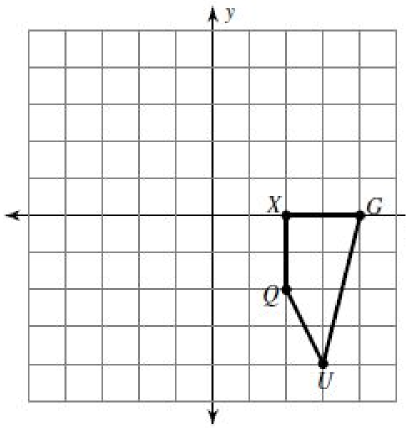
Day 2 Translations Hw

Graph the image of the figure using the transformation given write the algebraic rule and as a vector.

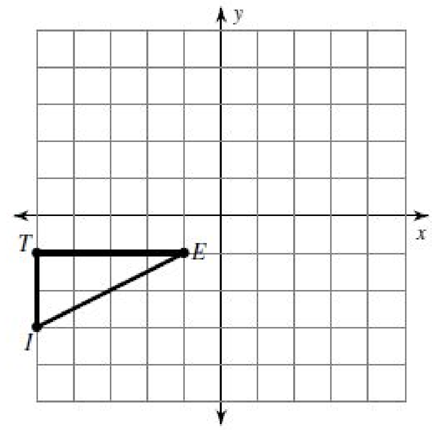
1) translation left 3 units



Algebraic Rule:

Vector:

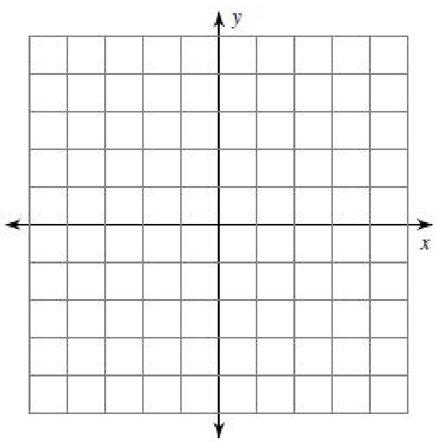
2) translation 1 unit right and 2 units down



Algebraic Rule:

Vector:

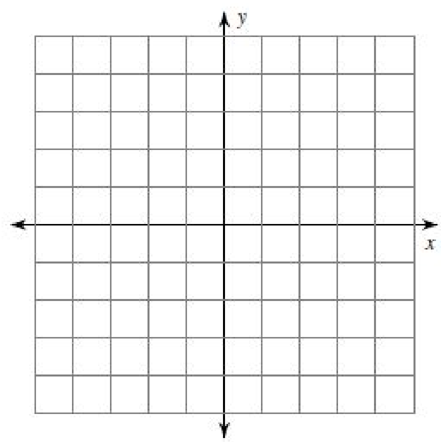
3) translation 4 units right and 5 units up
U(-3, -4), M(-1, -1), L(-2, -5)



Algebraic Rule:

Vector:

4) translation 3 units up and one unit left
R(-4, -3), D(-4, 0), L(0, 0), F(0, -3)



Algebraic Rule:

Vector:

Describe each of the transformations below. Then find the coordinates of the vertices of each image.

5) Translation: $(x, y) \rightarrow (x + 2, y - 1)$
Q(0, -1), D(-2, 2), V(2, 4), J(3, 0)

Vertices of the image:

Description of Transformation:

6) Translation: $(x, y) \rightarrow (x - 6, y)$
D(-4, 1), A(-2, 5), S(-1, 4), N(-1, 2)

Vertices of the image:

Description of Transformation:

7) Translation: $< -4, 4 >$
J(-1, -2), A(-1, 0), N(3, -3)

Vertices of the image:

Description of Transformation:

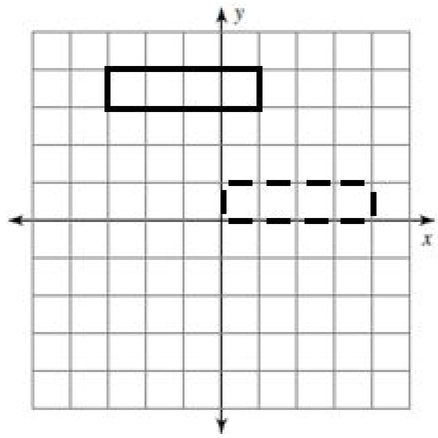
8) Translation: $< 0, 2 >$
Z(-4, -3), I(-2, -2), V(-2, -4)

Vertices of the image:

Description of Transformation:

9) Write an algebraic rule that describes the translation from the dotted figure to the solid figure.

Rule:



10) Kyle has performed a translation on a certain rectangle, however Mr. Ray is having a hard time reading his work. This is what he can make out:

Pre-image	Image
A(-3, -6)	
B(4, -6)	B'(1, -4)
C(4, 5)	C'(1, 7)
	D'(-6, 7)

a) What translation does it seem Kyle was performing?

Description:

Rule:

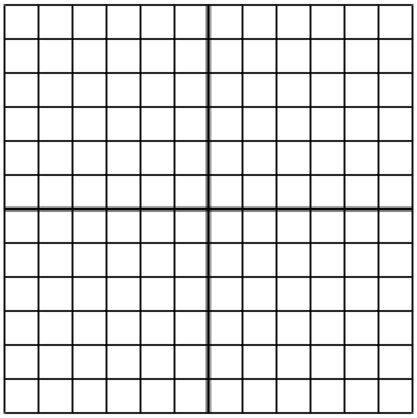
Vector:

b) Find the coordinates of A' and D.

Day 3 Reflections HW

Graph the image using the transformation given, and give the algebraic rule as requested.

1. Δ EFG if E(-1, 2), F(2, 4) and G(2, -4) reflected over the *y*-axis.



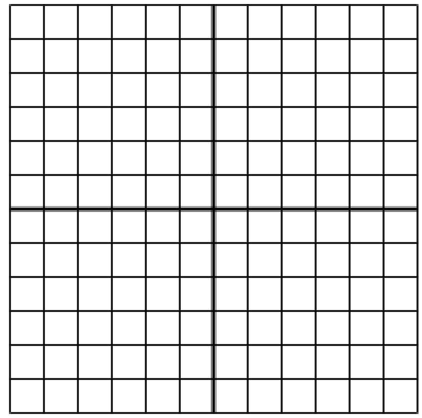
E’ ______

F’ ______

G’ ______

Rule:

2. Δ PQR if P(-3, 4), Q(4, 4) and R(2, -3) reflected over the *x*-axis.



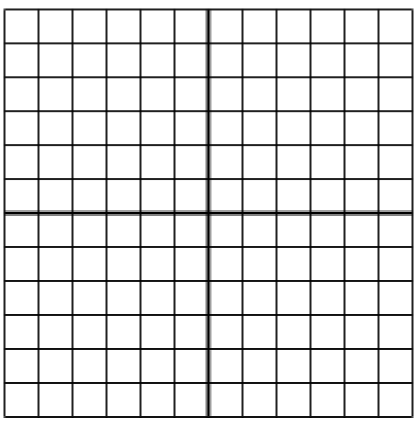
P’ ______

Q’ ______

R’ ______

Rule:

3. Quadrilateral *VWXY* if *V*(0, -1), *W*(1, 1), *X*(4, -1), and *Y*(1, -5) reflected over the line *y* = *x*.



V’ _____

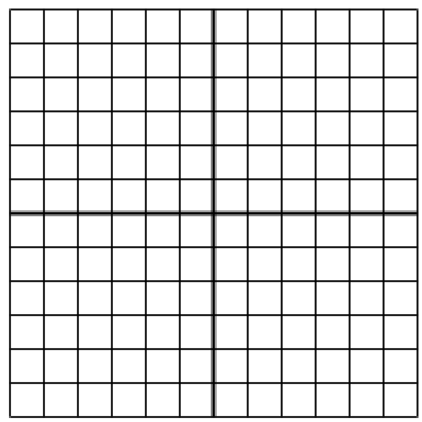
W’ _____

X’ _____

Y’ _____

Rule:

4. Δ *BEL* if *B*(-2, 3), *E*(2, 4), and *L*(3, 1) reflected over the line *y* = -*x*.



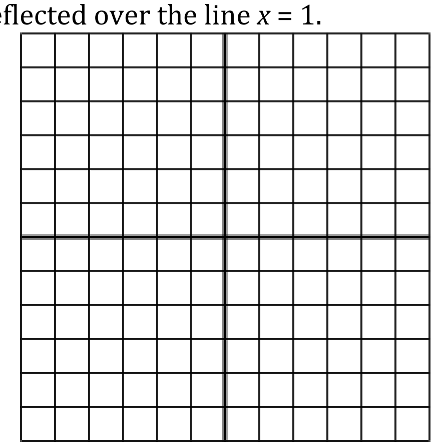
B’ _____

E’ _____

L’ _____

Rule:

5. Quadrilateral *SQUR* if *S*(1, 2), *Q*(2, 0), *U*(0, -1), and *R*(-1, 1) reflected over the line *x* = 1.



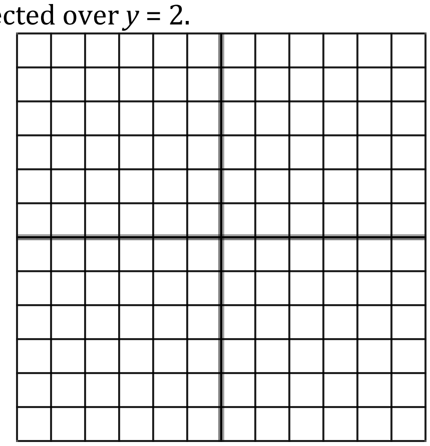
S’ _____

Q’ _____

U’ _____

R’ _____

6. Quadrilateral *MATH* if M(1, 4), *A*(-1, 2), *T*(2, 0) and *H*(4, 0) reflected over *y* = 2.



M’ _____

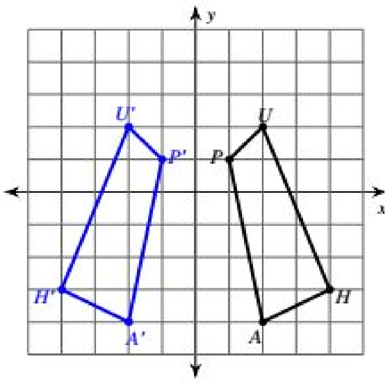
A’ _____

T’ _____

H’ _____

Write a specific description of each transformation and give the algebraic rule, as requested.

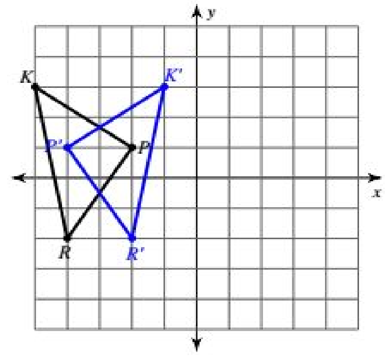
7.



Description:

Algebraic Rule:

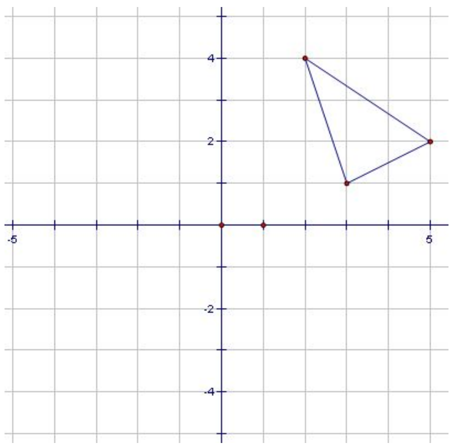
8.



Description:

Algebraic Rule:

9. The points (2,4), (3,1), (5,2) are reflected with the rule $(x, y) \rightarrow (x, -y)$.



10. A polygon lies entirely in quadrant II. In which quadrant will the image lie after a reflection over the line $y = x$?

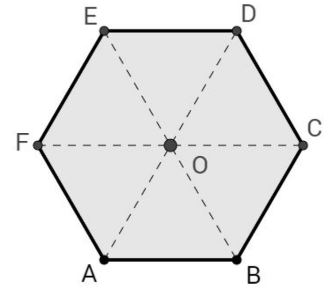
____

11. A polygon lies entirely in quadrant I. In which quadrant will the image lie after a reflection over the line $y = x$?

____

12. In the figure below, what is the image of Point A after it is reflected over the line BE?

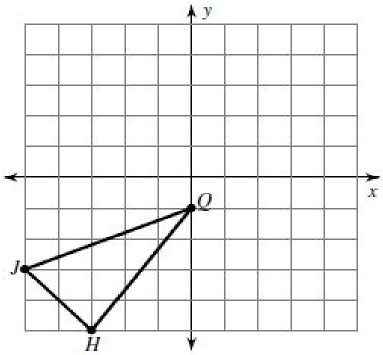
Point A → Point ____



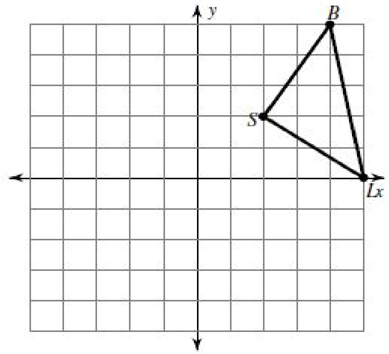
Day 4 Rotations Hw

Graph the image of the figure using the transformation given write the algebraic rule.

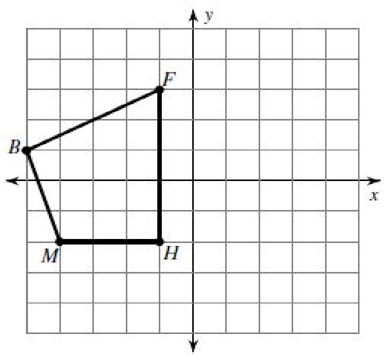
1) rotation 180° about the origin



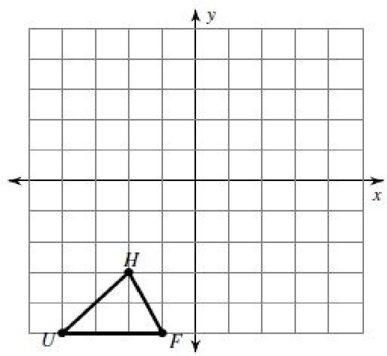
2) rotation 90° counterclockwise about the origin



3) rotation 90° clockwise about the origin

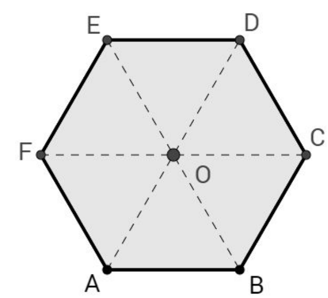


4) rotation 180° about the origin



Remember: A regular polygon is a polygon that is equiangular (all angles are equal in measure) and equilateral (all sides have the same length). In the case of regular polygons the center is the point that is equidistant from each vertex.

Given regular hexagon ABCDEF with center O,



a. C is rotated 60° about O, what is the image of C?

b. C is rotated 120° about O, what is the image of C?

c. C is rotated 180° about O, what is the image of C?

d. $\overline{DC}$ is rotated 240° about O, what is the image of $\overline{DC}$?

e. Explain the significance of the multiples of 60°.

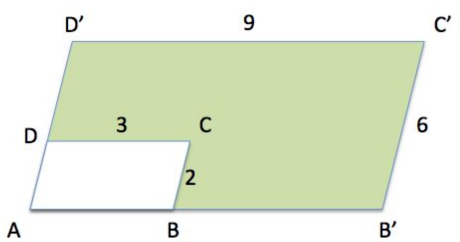
General Rule: The regular hexagon has rotation symmetry with respect to the center of the polygon and angles of rotation that measure ____, ____, ____, ____, _____ and ____.

Day 6 Dilations Homework

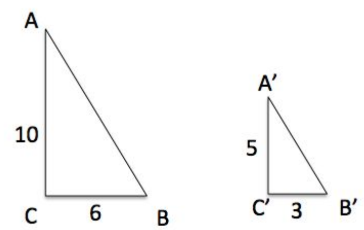
1. Describe the transformation given by rule $(x, y) \to (3x, y)$. Is it an “Isometry"? Why or why not?

2. Write an algebraic rule that would cause dilation by a factor of 3 and dilation by a factor of 1/2.

3. Find the scale factor of the dilation that maps ABCD to A’B’C’D’.

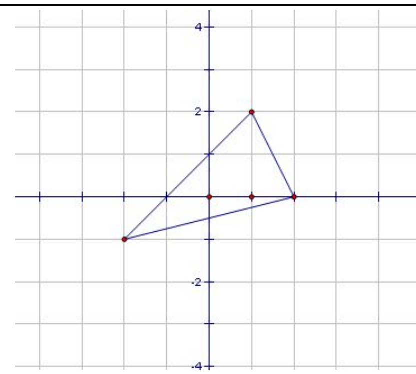


4. Find the scale factor of the dilation that maps ABC to A’B’C’.



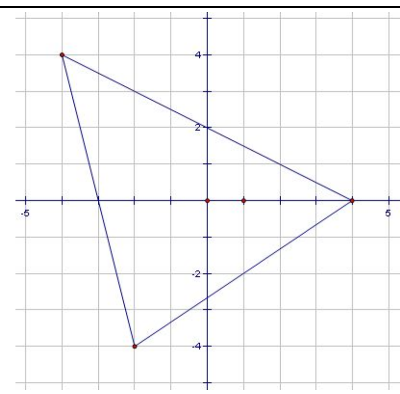
5. Graph the dilation of the object shown using a scale factor of 2.

Algebraic Rule:



6. Graph the dilation of the object shown using a scale factor of ½.

Algebraic Rule:



Applications:

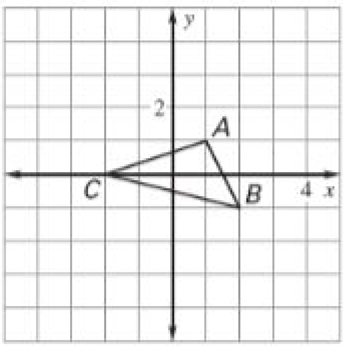
7. The package for a model airplane states the scale is 1:63. The length of the model is 7.6 cm. What is the length of the actual airplane?

8. Another model airplane states the scale is 1:96. The length of the real airplane is 48 feet. What is the length of the model?

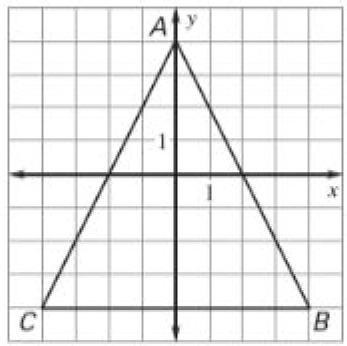
Day 7 Dilations and Angle Preservation HW

Graph a dilation of the figure using the given scale factor, *k*, with a center of (0, 0). Then write and label the vertices of the image.

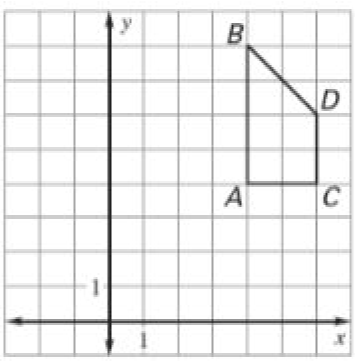
1. $k = 2$



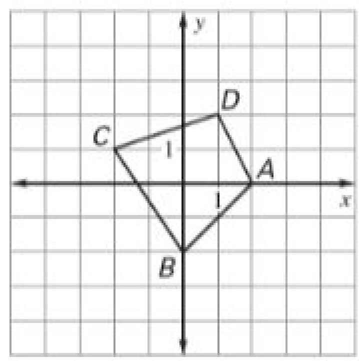
2. $k = \frac{1}{4}$



3. $k = \frac{1}{2}$

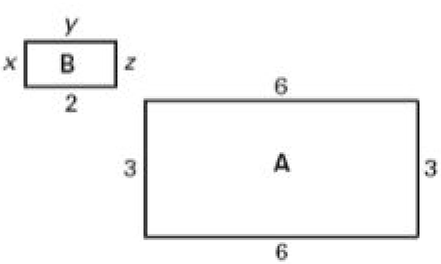


4. $k = 1\frac{1}{2}$

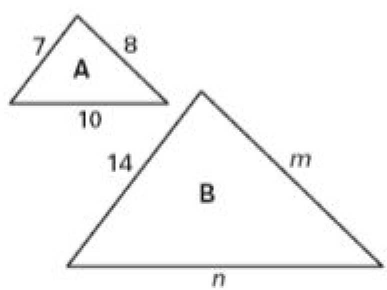


Determine whether the dilation from Figure A to Figure B is a *reduction* or an *enlargement*. Then, find the values of the variables.

5.



6.



Fill in the spaces:

7. Dilations create ______________________ figures.

8. Similar figures have ___________________ angles and __________________ sides.

9. When a line segment does not pass through the center of dilation the line segment and its image are _____________________.

10. When a line segment passes through the center of dilation, the segment and its image lie on the _____________ _________________.

11. The _______________ ________________ is the ratio of the lengths of the corresponding sides.

Determine if the following scale factor would create an enlargement, a reduction, or an isometric figure. *__Explain your reasoning.__*

12. 3.5

13. 4/3

14. 1

15. 7/8

Given the point and its image, determine the scale factor.

16. A(3, 6) A'(4.5, 9)

17. G'(3, 6) G(1.5, 3)

18. B(2, 5) B'(1, 2.5)

18. The sides of one right triangle are 6, 8, and 10. The sides of another right triangle are 10, 24, and 26. Determine if the triangles are similar. If so, what is the ratio of corresponding sides?

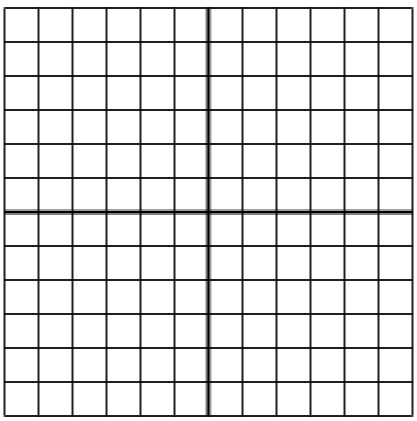
Day 8 Compositions Hw

Part 1: Graph the pre-image and image on the graph below AND label the vertices. Then, write a description of the transformation given by the coordinates below. Finally, write an algebraic rule for the transformation. (Hint: for help with the Algebraic Rules, look at earlier notes pages.)

1. The coordinates of $\triangle ABC$ are A(2, 1), B(3, 5), C(0, 4).
The coordinates of $\triangle A'B'C'$ are A'(2, -1), B'(3, -5), C'(0, -4).

Description: ________________

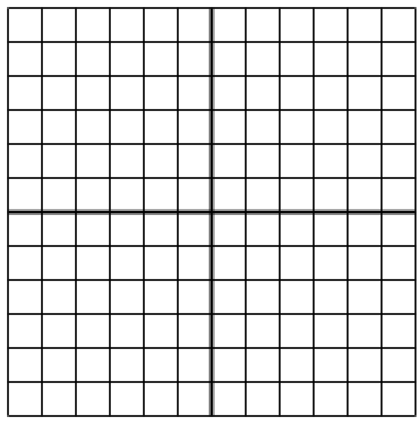
Algebraic Rule: ________________



2. The coordinates of $\triangle ABC$ are A(-2, 3), B(4, 0), C(-1, -4).
The coordinates of $\triangle A'B'C'$ are A'(0, 0), B'(6, -3), C'(1, -7).

Description: ________________

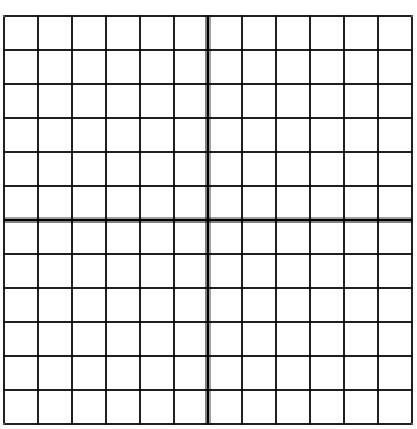
Algebraic Rule: ________________



3. The coordinates of $\triangle ABC$ are A(-1, 1), B(0, 3), C(-3, 1).
The coordinates of $\triangle A'B'C'$ are A'(1, 1), B'(3, 0), C'(1, 3).

Description: ________________

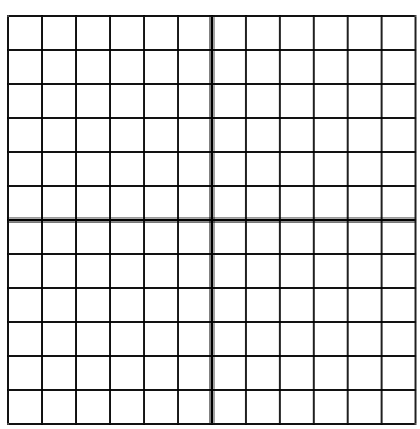
Algebraic Rule: ________________



4. The coordinates of $\triangle ABC$ are A(-3, 0), B(-2, 3), C(1, -3).
The coordinates of $\triangle A'B'C'$ are A'(6, 0), B'(4, -6), C'(-2, 6).

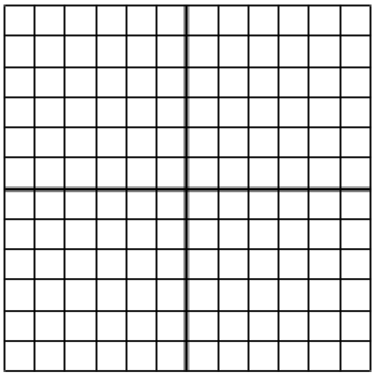
Description: ________________

Algebraic Rule: ________________



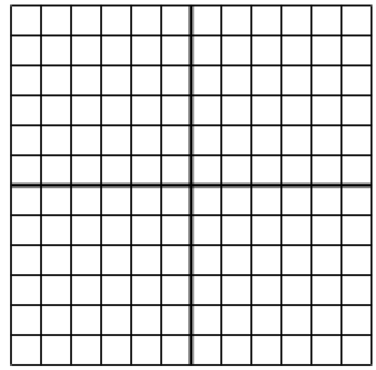
Part 2: Given the description, write an algebraic rule to represent the transformation. Then graph the pre-image and image on the graph below. Use ΔABC with A(2,-2), B(3,1), and C(1,2).

5) ΔABC is dilated by 2 about the origin by a factor of 2 about the origin



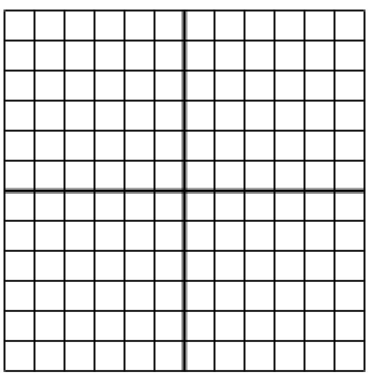
Algebraic Rule: ________________

6) ΔABC is rotated 180˚ then dilated



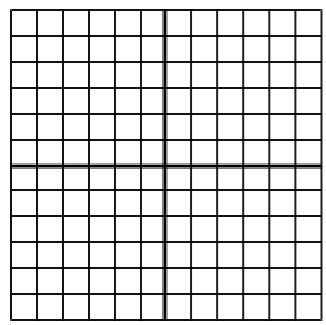
Algebraic Rule: ________________

7) ΔABC is reflected over y = -x and moved up 2



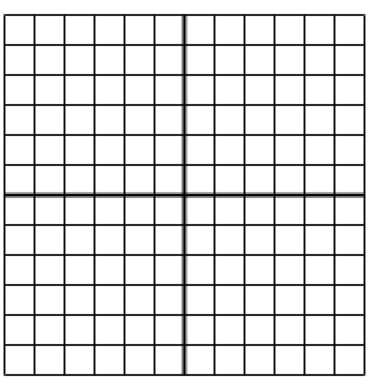
Algebraic Rule: ________________

8) ΔABC is moved up 4 and 2 to the right



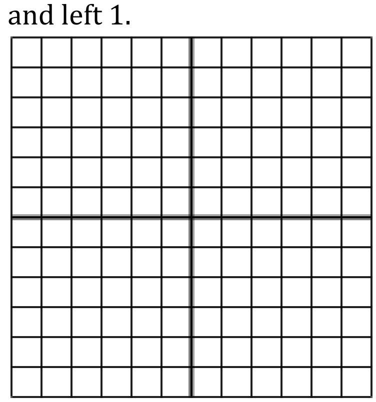
Algebraic Rule: ________________

9) ΔABC is reflected over the y-axis then dilated by a factor of 2 about the origin



Algebraic Rule: ________________

10) ΔABC is reflected over the x-axis, then dilated by ½ (about the origin), then moved down 2 and left 1.



Algebraic Rule: ________________