

Directions: For each problem-

(1) Vertices of Images- you will include work (using transformation rules from the pre-image to image, and second image when applicable) to calculate the vertices after each listed transformation. Make sure the coordinates are clearly written!

(2) Graphs- you will sketch the pre-image figure and the image figure (and the second image when applicable) that is formed after each listed transformation together on the same graph, per problem number. If you change the scale on the x- or y- axis, be sure to mark if it is by 2s, etc. Label each pre-image and image with the proper vertex names and markings. Make sure to **color/highlight/shade** each image figure in a different **color** than the pre-image figure on the graphs & label all vertices!

Translations

1. Triangle ABC with A(3, -2), B(1, 3), and C(-3, 3); left 4, down 1
2. Polygon PQRST with P(-1, -1), Q(-5, 1), R(-2, 4), S(0, 4); right 3, down 2

Dilations

3. Triangle ABC with A(3, -2), B(1, 3), and C(-3, 3); scale factor = 3
4. Polygon PQRST with P(-1, -1), Q(-5, 1), R(-2, 4), S(0, 4); scale factor = $\frac{1}{2}$

Reflections

5. Triangle ABC with A(3, -2), B(1, 3), and C(-3, 3); $y = x$
6. Polygon PQRST with P(-1, -1), Q(-5, 1), R(-2, 4), S(0, 4); y-axis
7. Quadrilateral DEFG with D(-4, 5), E(2, 6), F(3, 1), and G(-3, -4); x-axis

Rotations

8. Triangle ABC with A(3, -2), B(1, 3), and C(-3, 3); 90°
9. Polygon PQRST with P(-1, -1), Q(-5, 1), R(-2, 4), S(0, 4); 180°
10. Quadrilateral DEFG with D(-4, 5), E(2, 6), F(3, 1), and G(-3, -4); 270°

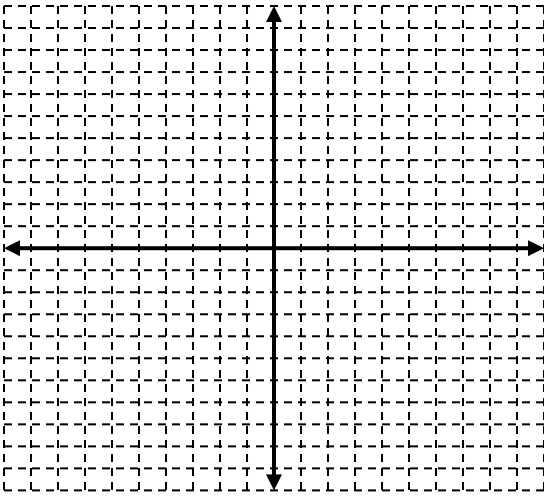
Multiple Transformations (graph pre-image, image, and second image all together)

Complete the multiple transformations in the order listed. Write the rule that describes the end transformation.

11. Triangle ABC with A(3, -2), B(1, 3), and C(-3, 3); translate left 5, up 2, then a 90° rotation

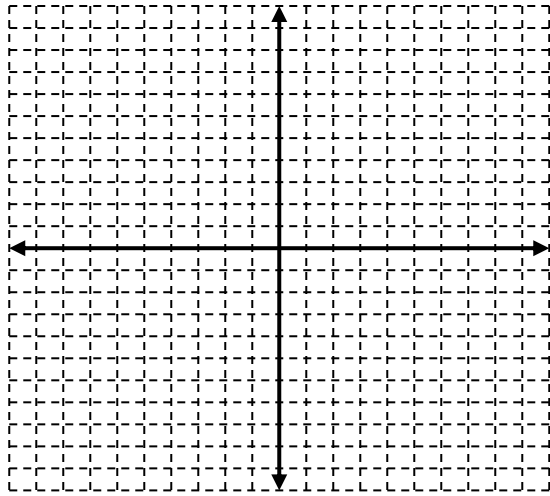
BONUS: Polygon JKLMNO with J(-3, 1), K(-2, 4), L(2, 4), M(3, 1), N(2, -2) and O(-2, -2); dilate with scale factor 2, then a reflection in the line $y = -x$

1.



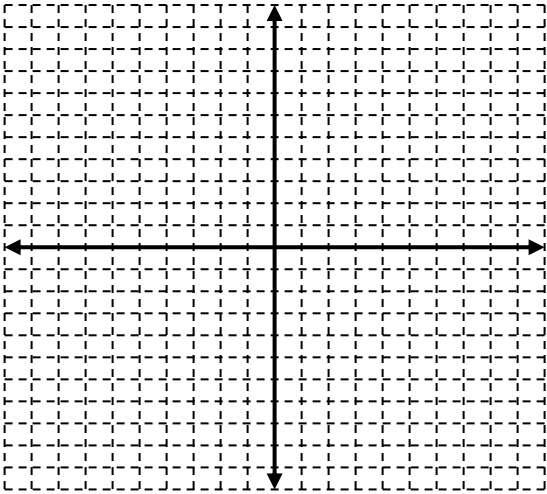
1.
A' _____
B' _____
C' _____

2.



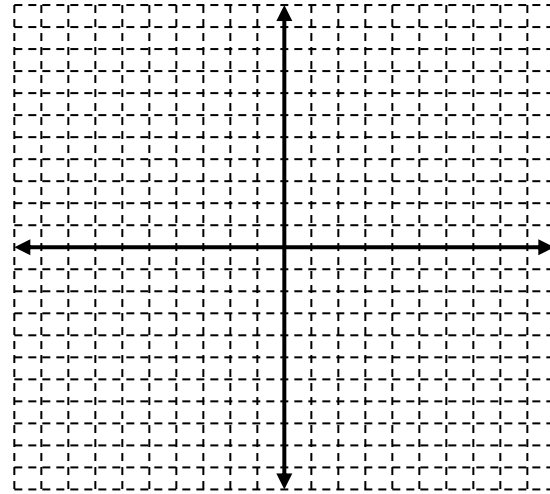
2.
P' _____
Q' _____
R' _____
S' _____

3.



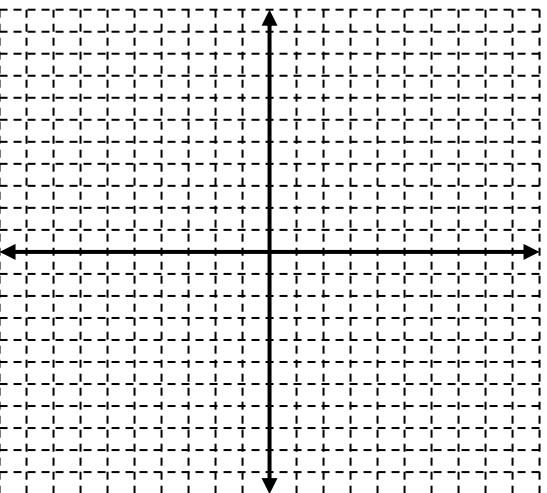
3.
A' _____
B' _____
C' _____

4.



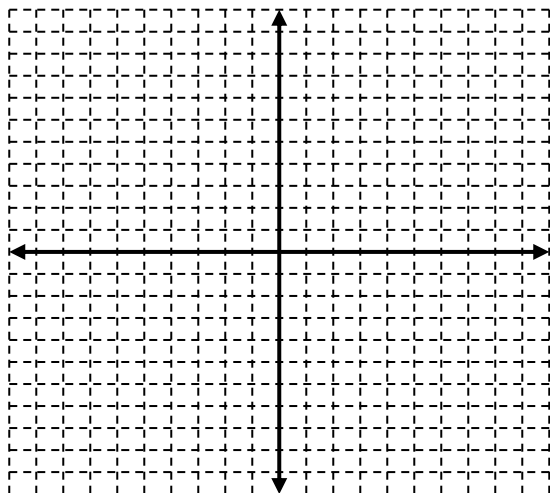
4.
P' _____
Q' _____
R' _____
S' _____

5.



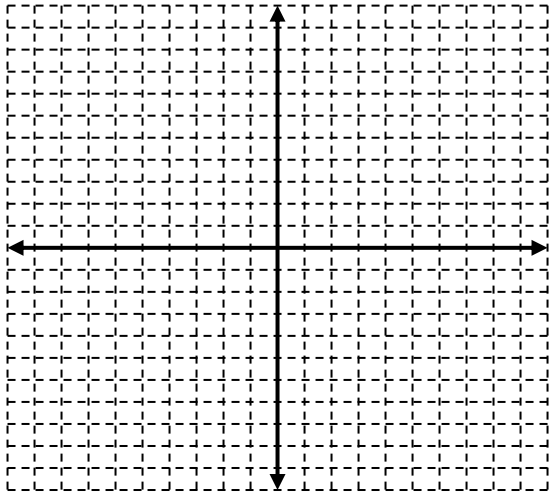
5.
A' _____
B' _____
C' _____

6.



6.
P' _____
Q' _____
R' _____
S' _____

7.



7.

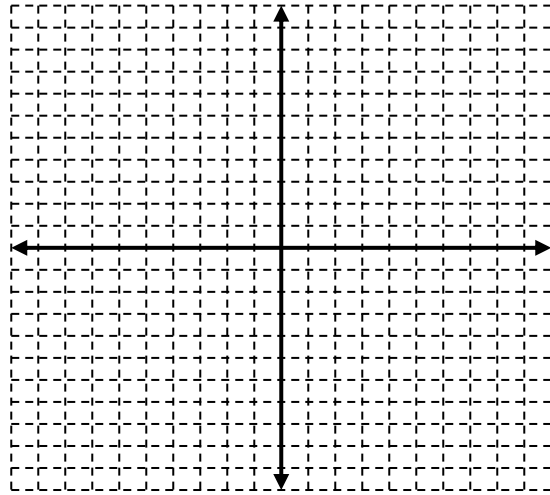
D' _____

E' _____

F' _____

G' _____

8.



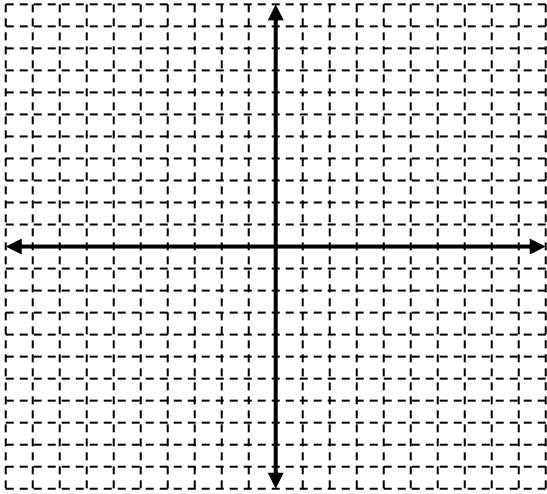
8.

A' _____

B' _____

C' _____

9.



9.

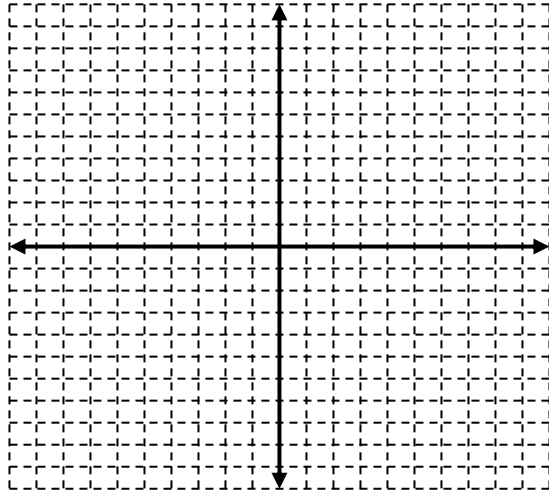
P' _____

Q' _____

R' _____

S' _____

10.



10.

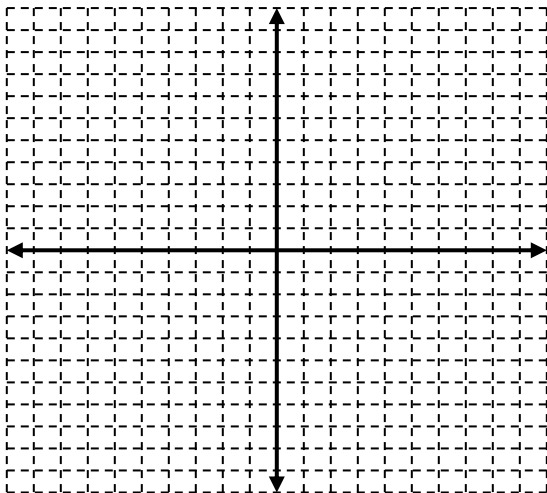
D' _____

E' _____

F' _____

G' _____

11.



11.

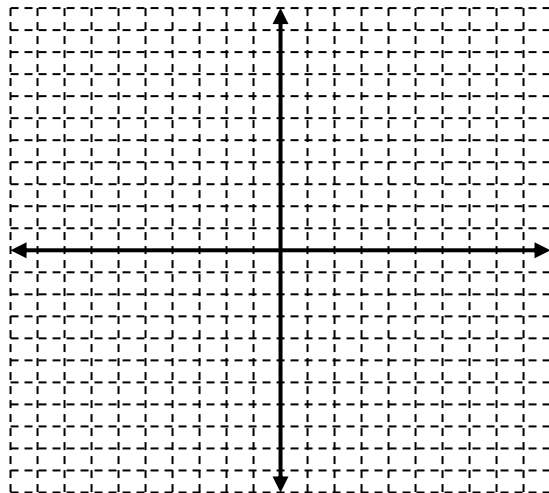
A'' _____

B'' _____

C'' _____

Rule:

BONUS



BONUS

J'' _____

K'' _____

L'' _____

M'' _____

N'' _____

O'' _____

Rule: