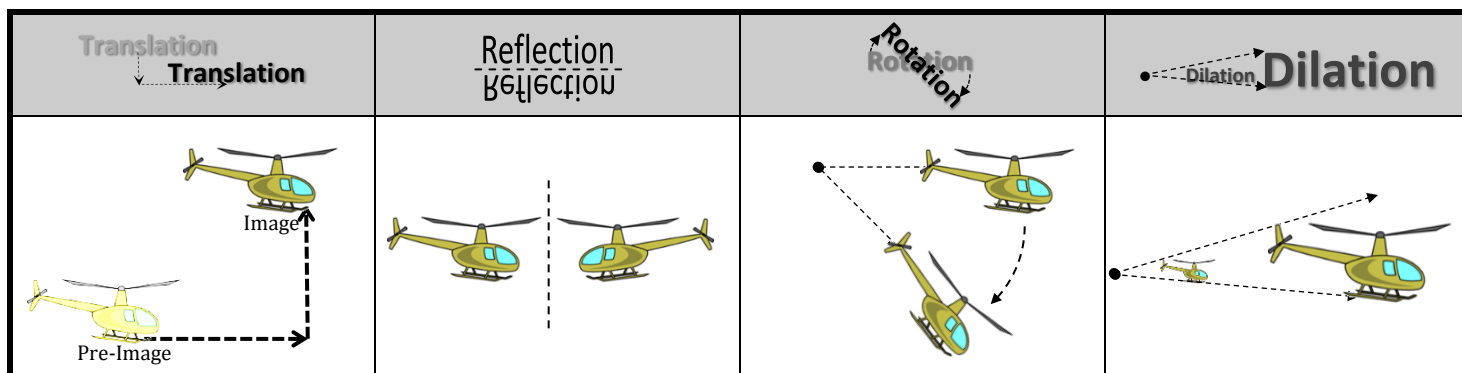
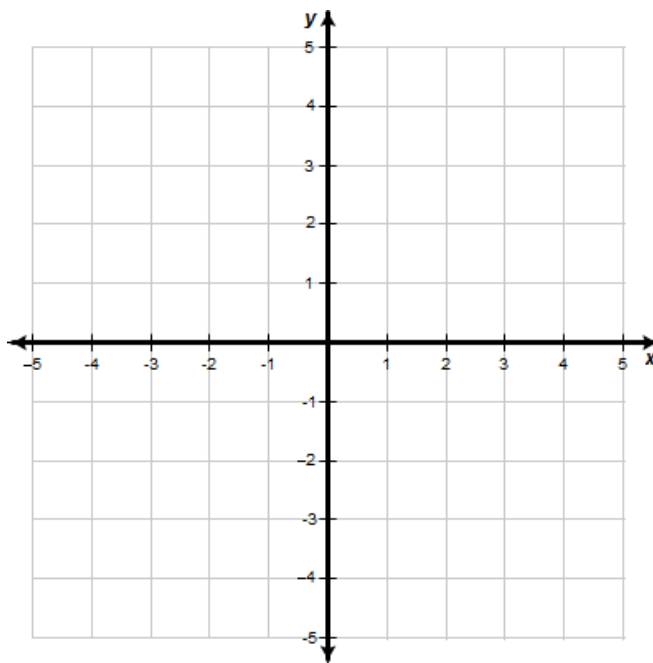


Transformation Types:



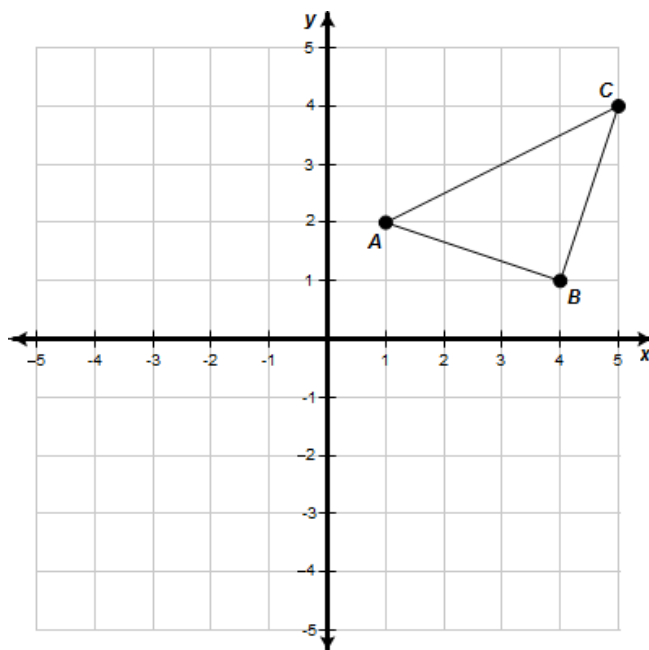
Translations

- Plot the points and create the pre-image triangle with vertices $M(-2, 3)$, $N(-3, 5)$, and $P(-5, 2)$. Then, determine the coordinates M' , N' , and P' of the image triangle that has been translated right 6 and down 3. Explain what you did to each of the coordinates.



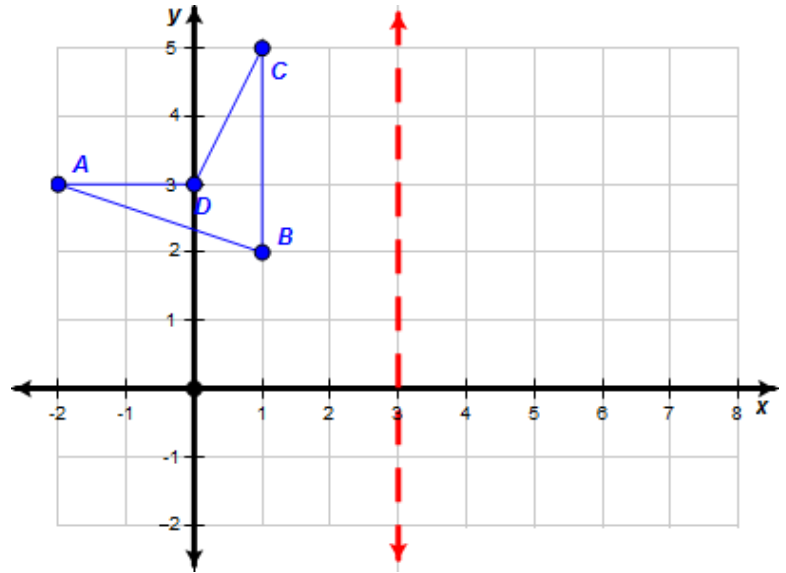
Reflections

- List the coordinates of the triangle ABC
- Reflect the triangle ABC over the **y-axis** and list the coordinates of the vertex A' , B' , and C' . Describe what happened to the coordinates from the pre-image to the image.
- Reflect the triangle ABC over the **x-axis** and list the coordinates of the vertex A' , B' , and C' . Describe what happened to the coordinates from the pre-image to the image.



Reflections

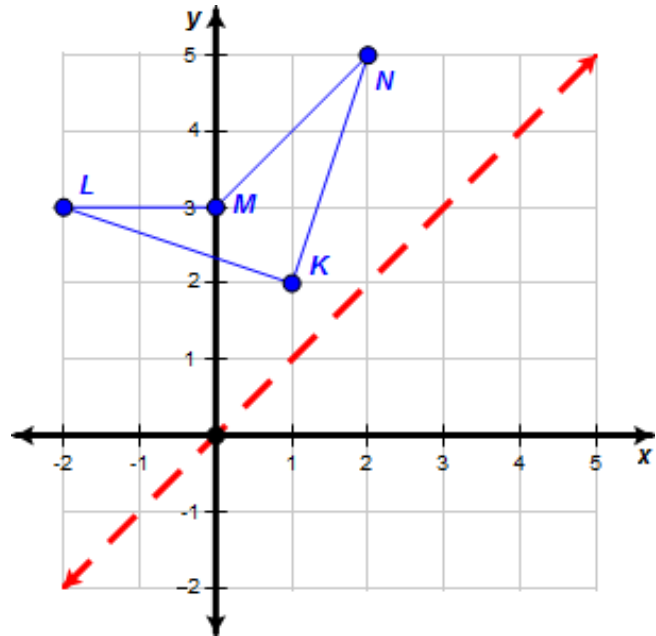
5. List the coordinates of the quadrilateral ABCD



6. Reflect the quadrilateral ABCD over the line $x = 3$ and list the coordinates of the vertex A' , B' , C' , and D' .

Reflections

7. List the coordinates of the quadrilateral KLMN



8. Reflect the quadrilateral KLMN over the line $y = x$ and list the coordinates of the vertex K' , L' , M' , and N' . Describe what happened to the coordinates from the pre-image to the image.

Reflections

9. If the point A is located at $(-3, 2)$ and A' is the image of A after being reflected over the x-axis, what are the coordinates of A' ?

10. If the point B is located at $(-4, -1)$ and B' is the image of B after being reflected over the y-axis, what are the coordinates of B' ?

11. If the point C is located at $(2, -3)$ and C' is the image of C after being reflected over the line $y = x$, what are the coordinates of C' ?

Rotations

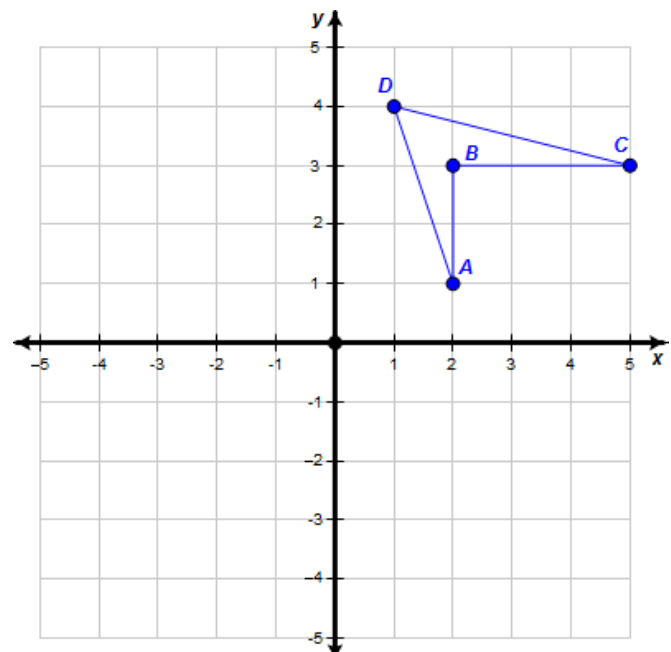
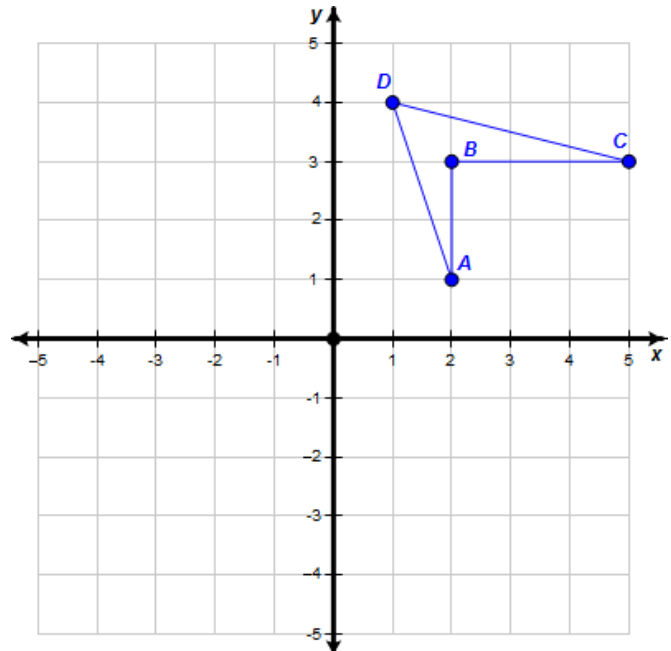
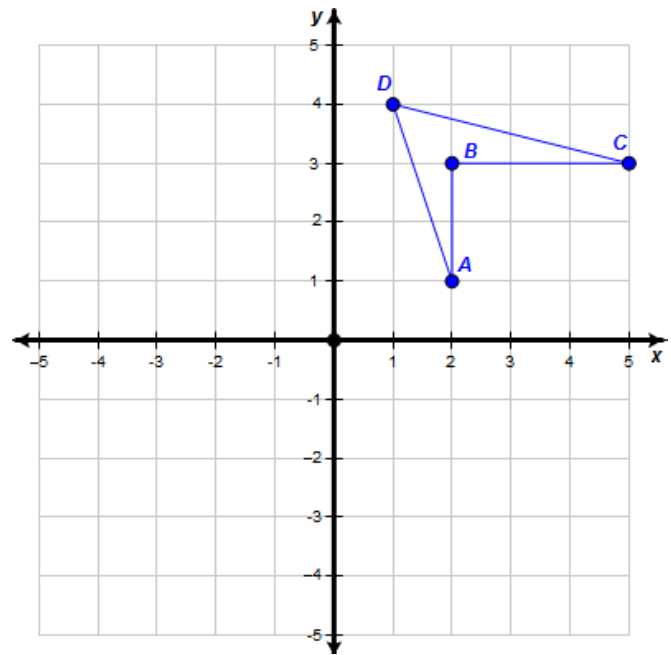
12. List the coordinates of the quadrilateral ABCD.

13. Rotate the quadrilateral **ABCD about the origin by 90°** and list the coordinates of the vertex A' , B' , C' , and D' . Describe what happened to the coordinates from the pre-image to the image.

14. Rotate the quadrilateral **ABCD about the origin by 180°** and list the coordinates of the vertex A' , B' , C' , and D' . Describe what happened to the coordinates from the pre-image to the image.

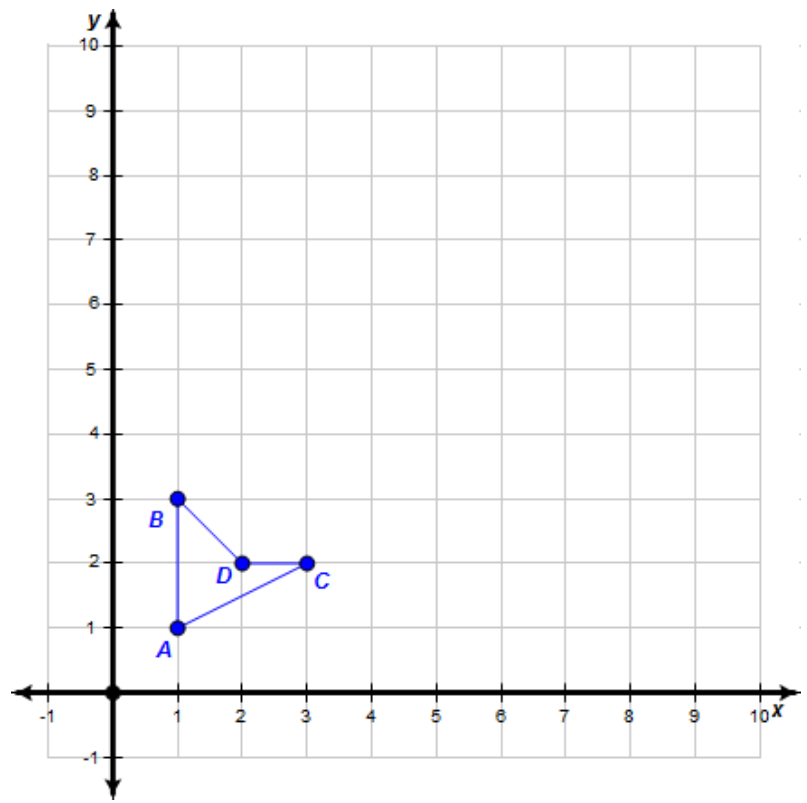
15. Rotate the quadrilateral **ABCD about the origin by 270°** and list the coordinates of the vertex A' , B' , C' , and D' . Describe what happened to the coordinates from the pre-image to the image.

16. If the point A is located at $(-3, 2)$ and A' is the image of A after being rotated about the origin by 270° . What are the coordinates of A' ?



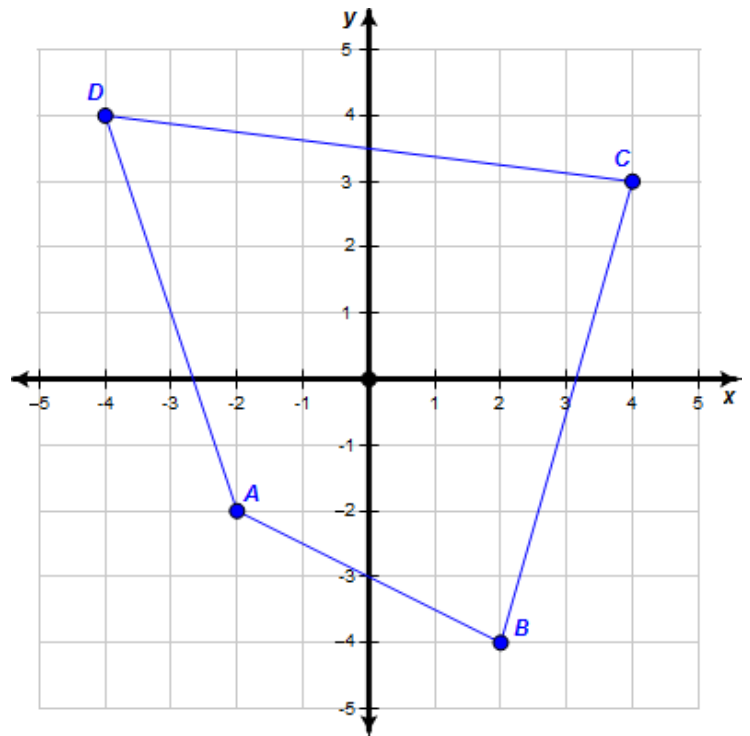
Dilations

17. List the coordinates of the quadrilateral ABCD.



18. Dilate the quadrilateral ABCD **by a scale factor of 3 from the origin** and list the coordinates of the vertex A', B', C', and D'. Describe what happened to the coordinates from the pre-image to the image.

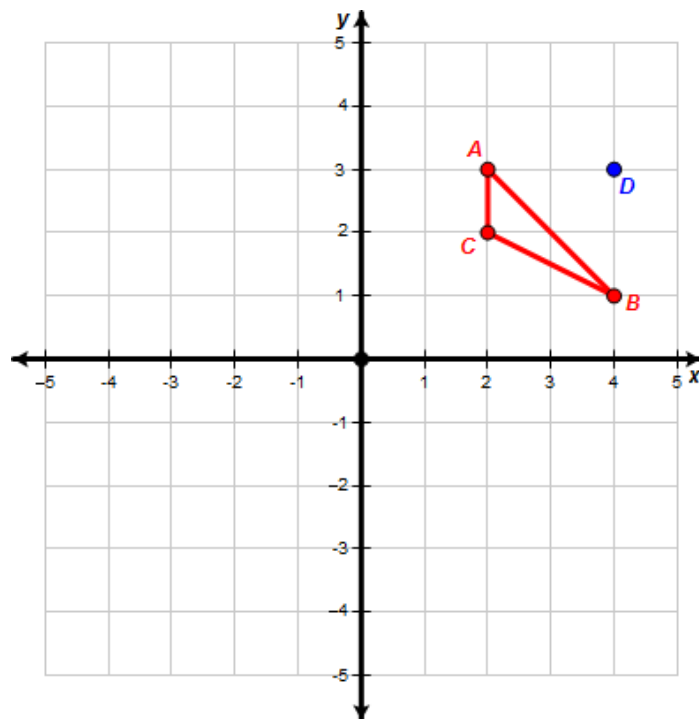
19. List the coordinates of the quadrilateral ABCD.



20. Dilate the quadrilateral ABCD **by a scale factor of $\frac{1}{2}$ from the origin** and list the coordinates of the vertex A', B', C', and D'. Describe what happened to the coordinates from the pre-image to the image.

21. If the point A is located at $(3, -2)$ and A' is the image of A after being dilated by a scale factor of 5 from the origin. What are the coordinates of A'?

22. Dilate the triangle ABC by a scale factor of 4 from the point D and list the coordinates of the vertex A', B', and C'.



Create a list of all of the basic coordinate transformation rules:

Translations

23. Point A (-3, 3) is on \overleftrightarrow{AB} . A translation moves the point A to its image A'(1,1).

What is the distance, in units, between any point on \overleftrightarrow{AB} and its image?

