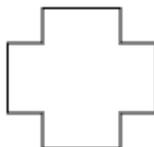


Lines of Symmetry: Draw the lines of symmetry for each graph and describe the order and magnitude (in degrees) of each that map the object onto itself.

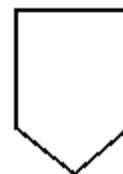
1.



2.



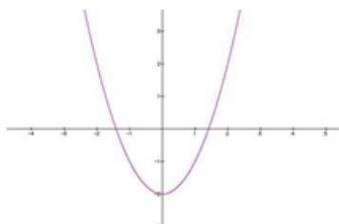
3.



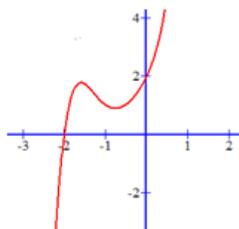
Also, if you rotated this star from point 1 to 4, how many degrees would that be for it to map onto itself?

Even/Odd/Neither Symmetry: Determine if the function is even, odd, or neither.

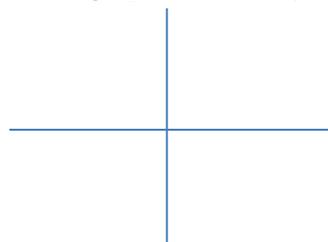
4.



5.



6. Draw a graph with odd symmetry



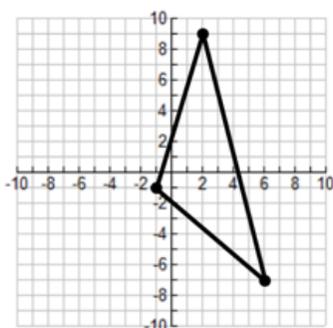
7. If points $(-4, -8)$ and $(-4, -10)$ are known to be part of a graph that has **even symmetry**, state what additional points must also be part of the graph.

8. If points $(3, -6)$ and $(-2, 7)$ are known to be part of a graph that has **odd symmetry**, state what additional points must also be part of the graph.

Translations

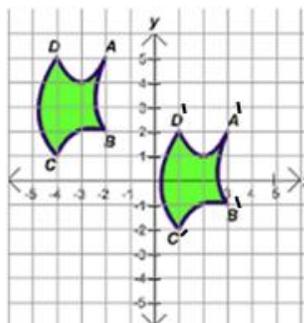
9. Complete the following translation

$T(x, y) \rightarrow (x - 8, y - 3)$



10. Write a function for the translation

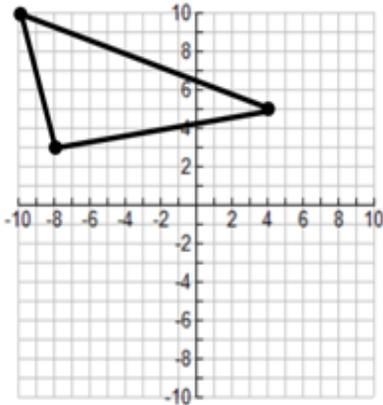
$T(x, y) =$ _____



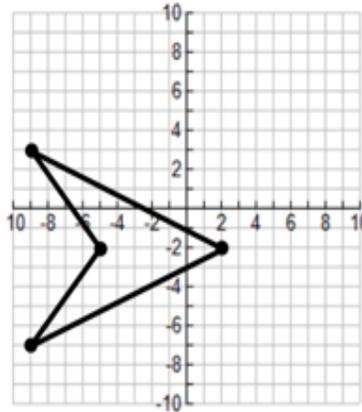
11. Given the new image $P'(-2, 1)$ and the translation $T(x, y) = (x - 4, y - 3)$, determine the coordinates of the original point P?

Reflections

12. Reflect the object across the x-axis



13. Complete the reflection: $R_{y=x}$



Using points $(-10, 7)$, $(8, -4)$, $(9, 6)$, perform the following transformations

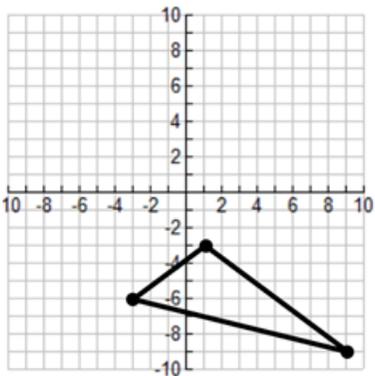
14. Reflect all points about the x-axis

15. Reflect all points about the y-axis

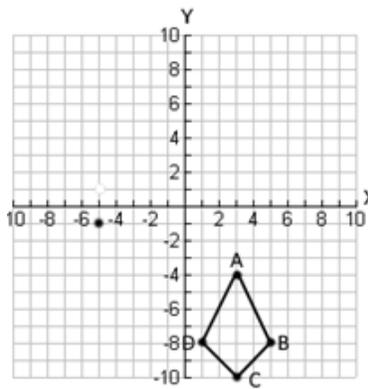
16. Reflect about the line $x = -2$.

Rotations

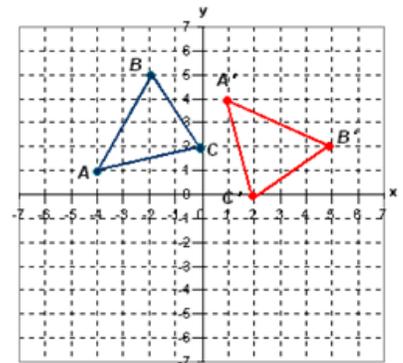
17. Rotate the object 180° about the origin.



18. Rotate the figure 90° clockwise about the origin.

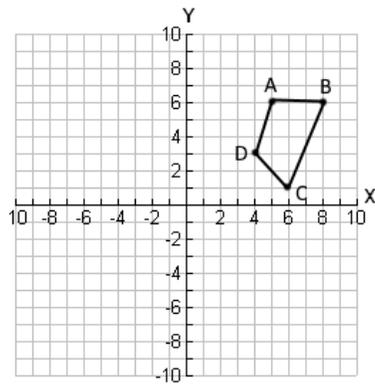


19. Determine the rule that performs the rotation.

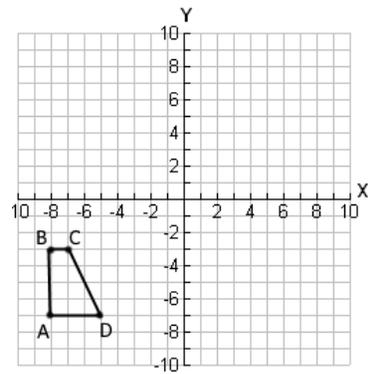


Combining Transformations – Make sure you label the post-image.

20. R_{90} and $R_{x\text{-axis}}$



21. $T(x + 10, y + 3)$ and R_{180}



Write the location of the point once the requested transformation has been completed.

22. Reflect M (3, 4) across the y-axis.

23. Rotate P (2, -4) 90° around the origin.

24. Given B (6,3) transform by $R_{270}(x, y)$.

25. Given D (2, 7) transform by $R(x, y) = (y, x)$.

26. For #25, what is the line of reflection?
