

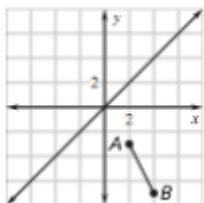
Name: _____ Hour: _____ Date: _____

Directions: Show all work, graph carefully & label your points.

For questions #1 - 9, consider the coordinates $P(3, -4)$. Find the coordinates of the image under the following transformations:

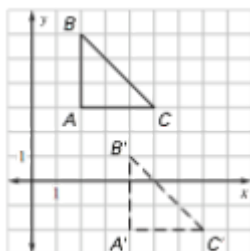
1. Rotation of 90°
2. Translation: $(x, y) \rightarrow (x + 4, y)$
3. Dilation: $k = 3$
4. Reflection over the line $y = -x$
5. Rotation of 270°
6. Reflection over the x -axis
7. Translation:
 $(x, y) \rightarrow (x - 7, y + 2)$
8. Reflection over the line $x = -1$
9. Glide Reflection:
 - Rotation of 180°
 - Reflection over the y -axis

10. Find the coordinates of the preimage $A'(3, -7)$ under the translation: $(x, y) \rightarrow (x - 4, y + 2)$.
11. What are the endpoints of $\overline{A'B'}$ if $\overline{AB}$ is reflected over the line $y = x$.

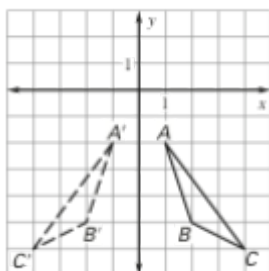


For questions #12 - 15, identify and describe the following transformations. (ex. Dilation with scale factor $k = 3$, reflection over the x -axis.) Questions 16 involves a glide reflection; identify both transformations taking place.

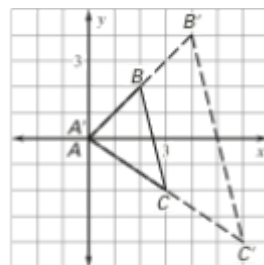
12.



13.

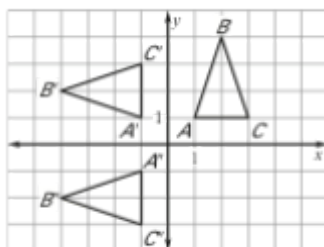
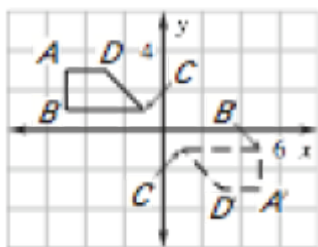


14.



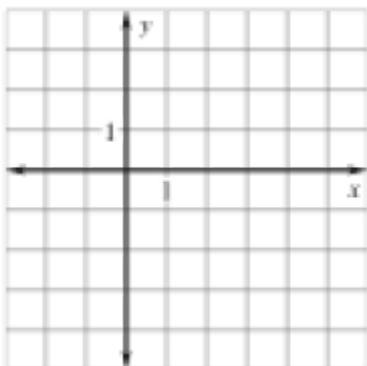
15.

16.



For questions #17 – 22: Graph the *image* under the indicated transformation. Clearly label your figures using prime notation. Identify your transformed coordinates.

17. The vertices of $\triangle ABC$ are $A(-1, 1)$, $B(-3, -1)$ and $C(1, -3)$, Graph $\triangle ABC$ and it's image $\triangle A'B'C'$ after the following translation:
 $(x, y) \rightarrow (x + 2, y + 6)$

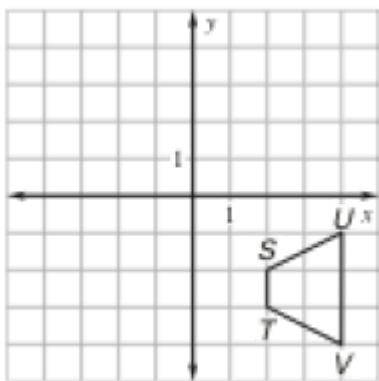


$A'(\quad)$

$B'(\quad)$

$C'(\quad)$

18. Rotate the figure 180° about the origin.



$S'(\quad)$

$T'(\quad)$

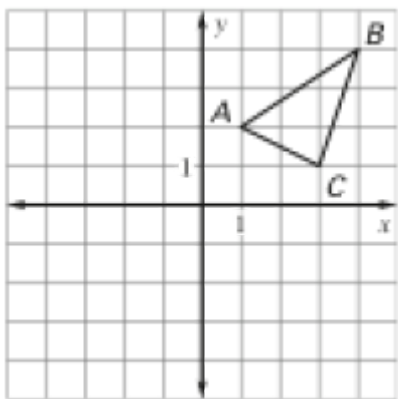
$V'(\quad)$

$U'(\quad)$

19. Reflect the object over the y -axis

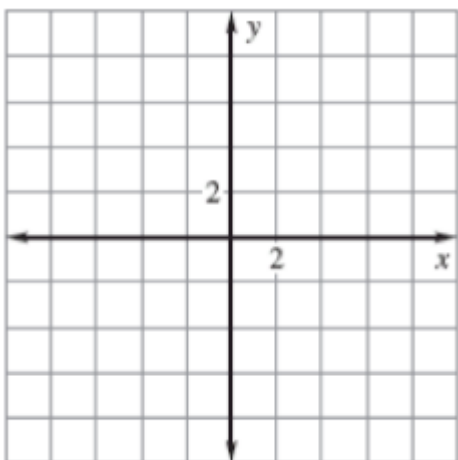
$A'(\quad)$

$B'(\quad)$



$C'(\quad \quad \quad)$

20. The vertices of $\triangle XYZ$ are $X(8, 4)$, $Y(-6, -2)$ and $Z(-4, 4)$. Perform a dilations with scale factor of $k = -0.5$.



$X'(\quad \quad \quad)$

$Y'(\quad \quad \quad)$

$Z'(\quad \quad \quad)$

21. The vertices of $\triangle MNO$ are $M(2, 0)$, $N(2, -4)$, and $O(4, -2)$. Perform the following **Glide**

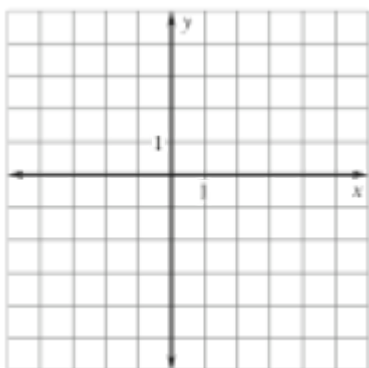
Reflection:

- Rotation of 90°
- Translation of $(x, y) \rightarrow (x - 5, y - 3)$

$M'(\quad \quad \quad) \rightarrow M''(\quad \quad \quad)$

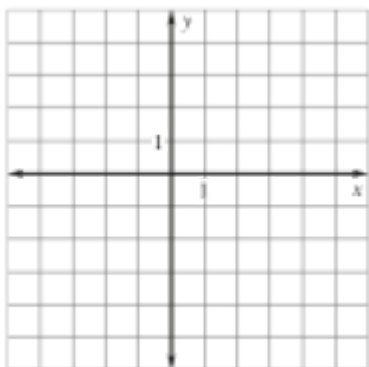
$N'(\quad \quad \quad) \rightarrow N''(\quad \quad \quad)$

$O'(\quad \quad \quad) \rightarrow O''(\quad \quad \quad)$



22. The vertices of $\triangle ABC$ are $A(3, 1)$, $B(1, 5)$, and $C(5, 3)$. Perform the following **Glide Reflection**:

- Reflection over the y -axis
- Reflection over the x -axis



$$A'(\quad) \rightarrow A''(\quad)$$

$$B'(\quad) \rightarrow B''(\quad)$$

$$C'(\quad) \rightarrow C''(\quad)$$

23. The double reflection above is equivalent to a rotation of _____.