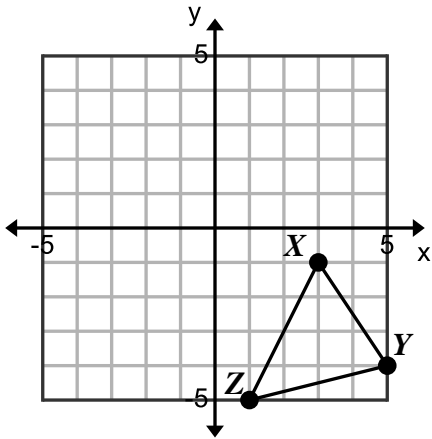


HW 8-2: Rotations

$\triangle XYZ$ has vertices $X(3,-1)$, $Y(5,-4)$, and $Z(1,-5)$. Graph and label the image of $\triangle XYZ$ after each rotation. Then give the coordinates of the vertices for $\triangle X'Y'Z'$.

1. **90** clockwise about the origin.

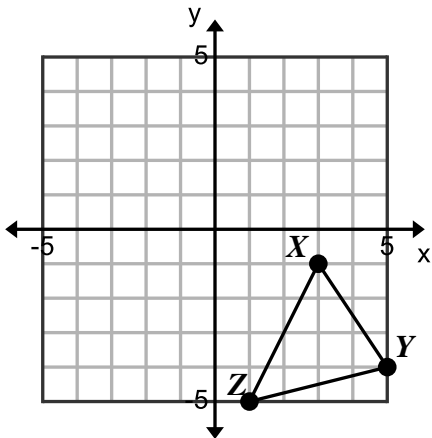


X' ()

Y' ()

Z' ()

2. **180** clockwise about the origin.

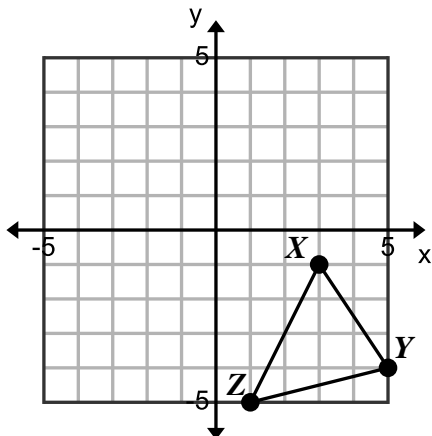


X' ()

Y' ()

Z' ()

3. **270** clockwise about the origin.

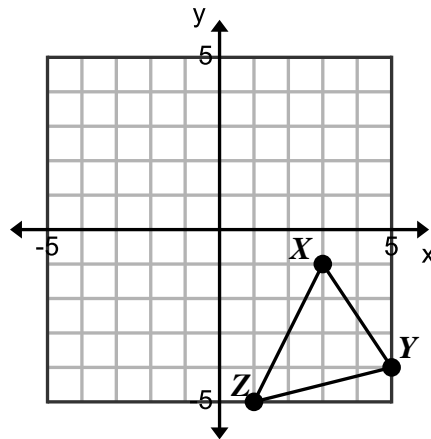


X' ()

Y' ()

Z' ()

4. **90** counterclockwise about the origin.

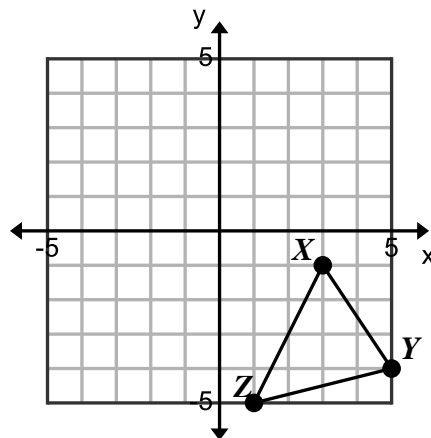


X' ()

Y' ()

Z' ()

5. **180** counterclockwise about the origin.

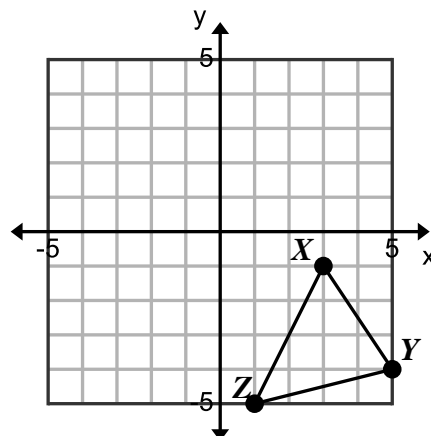


X' ()

Y' ()

Z' ()

6. **270** counterclockwise about the origin.

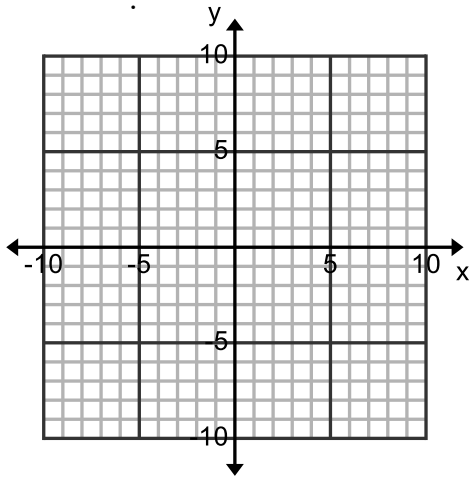


X' ()

Y' ()

Z' ()

7. $\triangle RST$ has vertices $R(-7,8)$, $S(-7,2)$, and $T(-2,2)$. Graph the figure and its rotated image after a clockwise rotation of 180° about the origin. Then give the coordinates of the vertices for the $\triangle R'S'T'$.

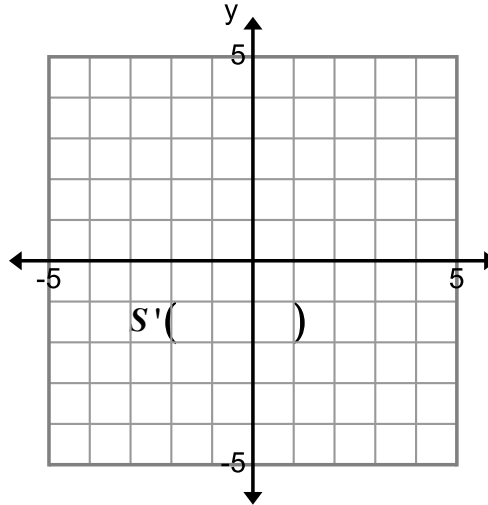


$R'(\quad)$

$S'(\quad)$

$T'(\quad)$

8. Quadrilateral $ABCD$ has vertices at $A(-3,-4)$, $B(-1,-1)$, $C(2,-2)$, and $D(3,-4)$. Graph $ABCD$ and its image after a 90° clockwise rotation about the origin. Then give the coordinates of the vertices for the $A'B'C'D'$.



$A'(\quad)$

$B'(\quad)$

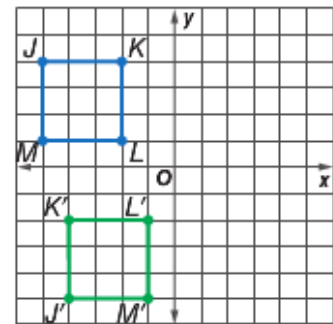
$C'(\quad)$

$D'(\quad)$

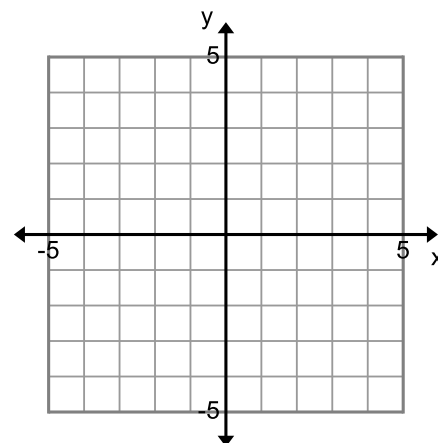
9. Which capital letters in **VIRGINIA** produce the same letter after being rotated 180° ?

10. Square $JKLM$ is rotated about the origin. Which of the following describes the rotation?

- (A) 90° clockwise (C) 180° clockwise
 (B) 90° counterclockwise (D) 270° counterclockwise



11. $EFGH$ has vertices $E(-3,-4)$, $F(-1,-1)$, $G(2,-2)$, and $H(3,-4)$. Graph the figure and its rotated image after a counter-clockwise rotation of 90° about the origin. Then give the coordinates of the vertices of $E'F'G'H'$.



$E'(\quad)$

$F'(\quad)$

$G'(\quad)$

$H'(\quad)$

Identify each transformation as a *translation*, *reflection*, or *rotation*.

12.



13.



14.



$\triangle MNP$ has vertices $M(1,4)$, $N(3,1)$, and $P(5,3)$. Find the vertices of $M'N'P'$ after each rotation about the origin.

15. 90° clockwise

$M'(\quad)$

$N'(\quad)$

$P'(\quad)$

16. 180° clockwise

$M'(\quad)$

$N'(\quad)$

$P'(\quad)$

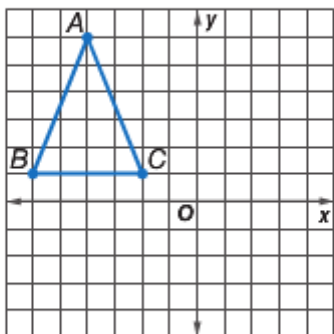
17. 90° counterclockwise

$M'(\quad)$

$N'(\quad)$

$P'(\quad)$

18. If $\triangle ABC$ is rotated 90° counterclockwise about the origin, which is the resulting image of point C?



(A) (2, -1)

(B) (1, -2)

(C) (-2, -1)

(D) (-1, -2)

19. Use the graph of $\triangle ABC$ shown below.

a. What are the coordinates of $\triangle A'B'C'$ when $\triangle ABC$ is reflected over the x -axis?

b. Graph and label the image of $\triangle ABC$ after it is translated 2 units right and 1 unit up. List new coordinates

