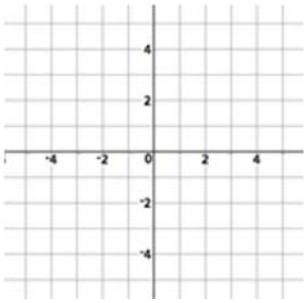
Ch 4 Practice Review

1. The vertices of ΔFGH are $F(-2, -6)$, $G(3, 0)$, and $H(1, -4)$. Translate ΔFGH using the vector $\langle -2, 5 \rangle$. Graph both triangles



Find the image using the translation

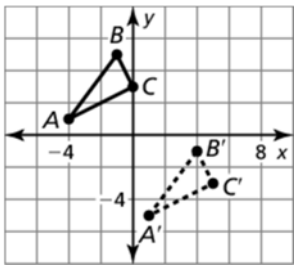
$(x, y) \rightarrow (x - 4, y + 3)$

2. $G(-2, 4)$

3. $H(-10, 5)$

4. Find the component form of the vector that translates $A(-4, 8)$ to $A'(7, -9)$

5. Write a rule for the translation of ΔABC to $\Delta A'B'C'$

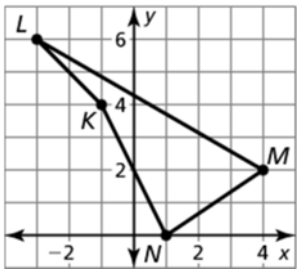


What are the vertices of its image after a reflection in the given line.

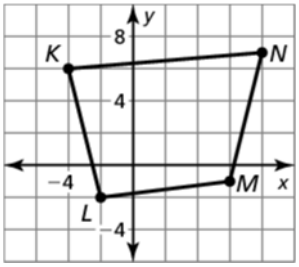
6. $C(3, 4)$, $D(2, -1)$, $E(0, -5)$ over the y-axis

7. $C(1, 6)$, $D(12, 2)$, $E(7, -8)$ over the $x = 8$

8. x-axis

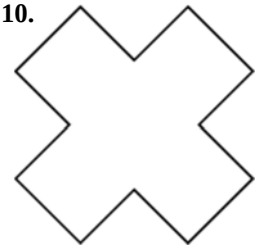


9. $y = -1$

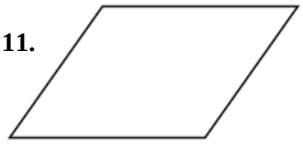


Determine whether the figure has line of symmetry. If so, determine the number of lines.

10.

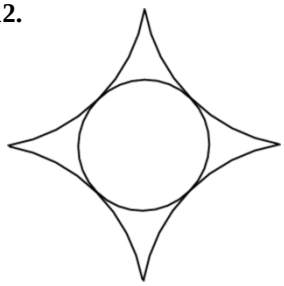


11.

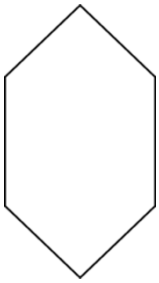


Determine whether the figure has rotational symmetry. If so, describe any rotations that map the figure onto itself.

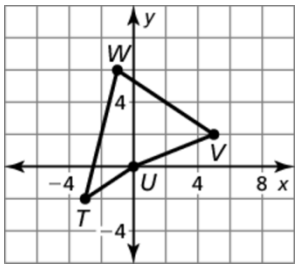
12.



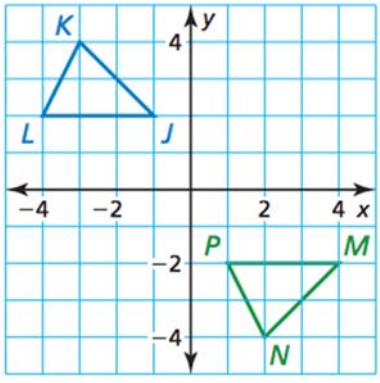
13.



14. What are the vertices of the **polygon after a 90° rotation** about the origin.

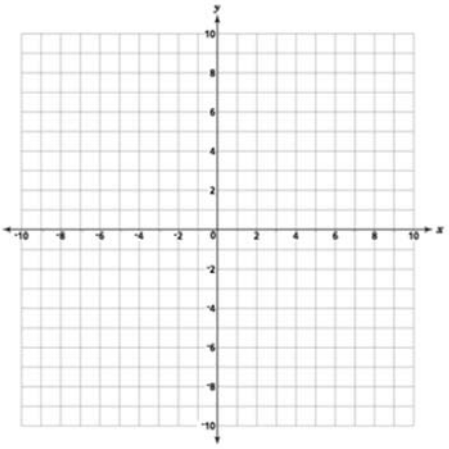


15. Describe a congruence transformation that maps ΔJKL to ΔMNP.



Determine whether the polygons with the given vertices are congruent. Use transformations to explain your reasoning.

16. $A(0, 6)$, $B(8, 6)$, $C(6, 2)$, $D(2, 2)$
and $P(-3, -4)$, $Q(-7, -4)$, $R(-1, -8)$, $S(-5, -8)$



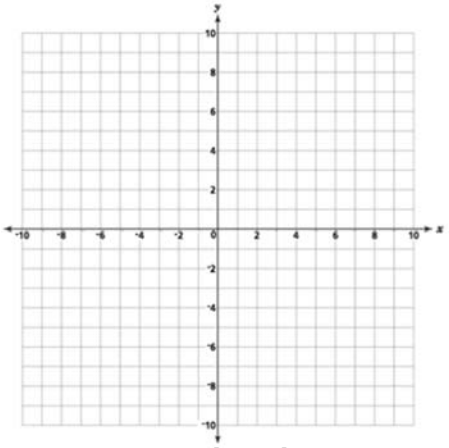
What are the vertices of the image after a dilation with a scale factor *k*?

17. $T(-3, 6)$, $A(6, 9)$, $L(12, -3)$, $K(-6, -9)$; $k = {}^1/_3$

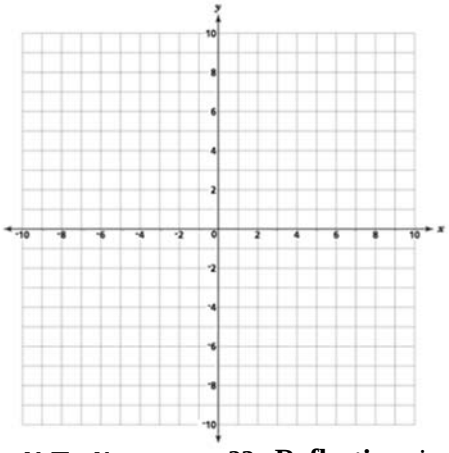
18. $G(1, 1)$, $I(-1, 0)$, $F(-4, 2)$, $T(-3, 4)$; $k = -3$

Graph ΔJKL with vertices $J(-2, 8)$, $K(1, -3)$, and $L(5, 4)$ and its image after the given translation or composition.

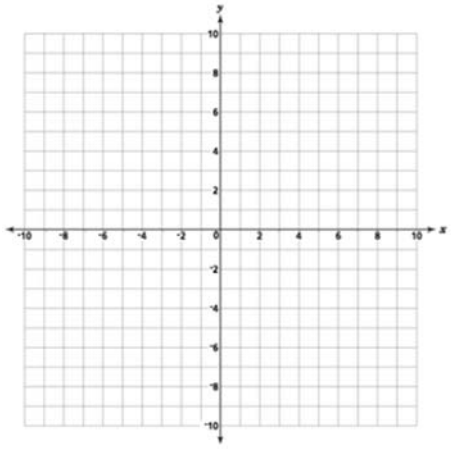
19. Translation: $(x, y) \rightarrow (x + 6, y - 1)$
Translation: $(x, y) \rightarrow (x - 1, y - 7)$



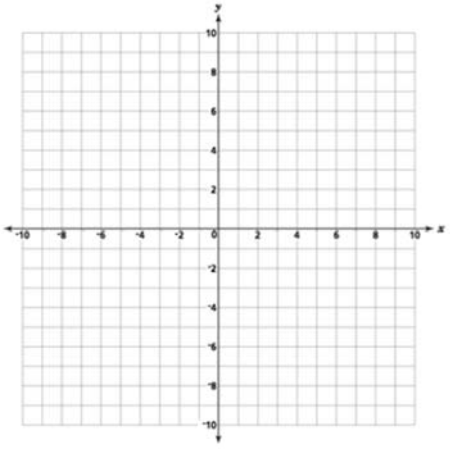
20. Translation: $(x, y) \rightarrow (x + 2, y - 1)$
Reflection: in the $y = x$



21. Rotation: 180° about the origin
Translation: $(x, y) \rightarrow (x + 3, y + 1)$



22. Reflection: in the line $y = -x$
Translation: $(x, y) \rightarrow (x - 3, y + 1)$



23. Reflection: in the line $y = x$
Rotation: 270° about the origin