

Name _____ Date _____

Day 1 – Translations, Reflections, and Rotations

1. Translate the image by $(x + 4, y - 6)$

$$A(-2, 4) \rightarrow A' \underline{\hspace{2cm}}$$

$$B(0, -8) \rightarrow B' \underline{\hspace{2cm}}$$

$$C(-3, 5) \rightarrow C' \underline{\hspace{2cm}}$$

2. Translate the image by $(x - 1, y + 5)$

$$D(1, 2) \rightarrow D' \underline{\hspace{2cm}}$$

$$E(-3, -5) \rightarrow E' \underline{\hspace{2cm}}$$

$$F(4, -1) \rightarrow F' \underline{\hspace{2cm}}$$

3. Find the pre-image $(x - 9, y + 13)$

$$G \underline{\hspace{2cm}} \rightarrow G'(5, -29)$$

$$H \underline{\hspace{2cm}} \rightarrow H'(20, -19)$$

$$I \underline{\hspace{2cm}} \rightarrow I'(21, -4)$$

4. Find the pre-image $(x + 7, y - 19)$

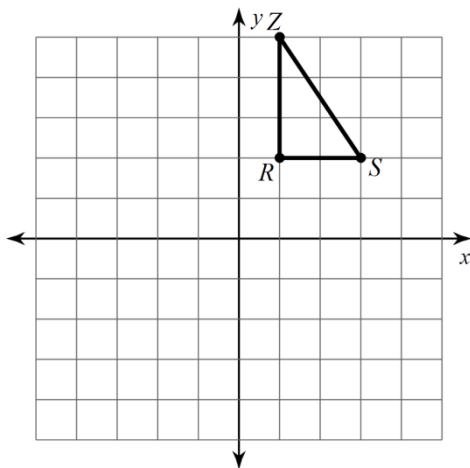
$$G \underline{\hspace{2cm}} \rightarrow G'(2, 18)$$

$$H \underline{\hspace{2cm}} \rightarrow H'(13, 29)$$

$$I \underline{\hspace{2cm}} \rightarrow I'(24, 37)$$

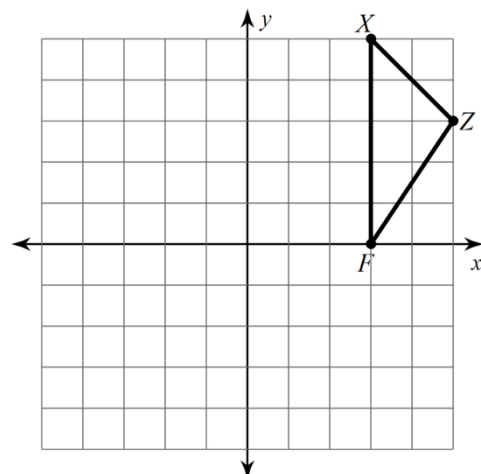
5. Translate the image.

$$\text{translation: } (x, y) \rightarrow (x - 3, y - 5)$$

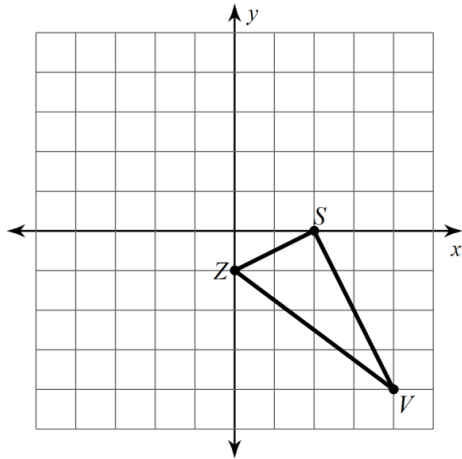


6. Translate the image.

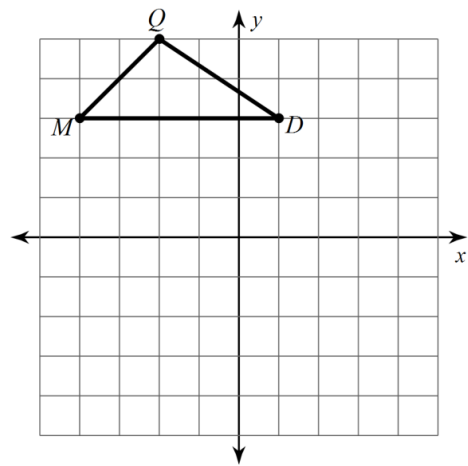
$$\text{translation: } (x, y) \rightarrow (x - 2, y - 4)$$



7. Translate the image.
translation: $(x, y) \rightarrow (x - 5, y + 1)$

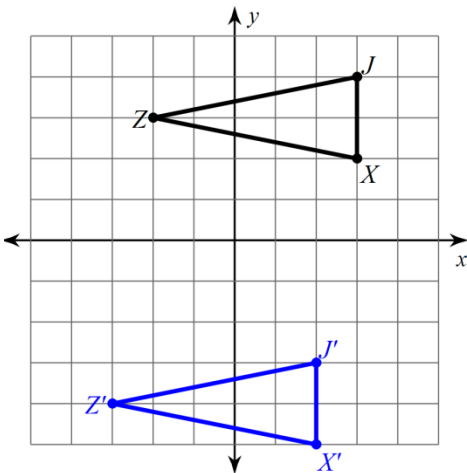


8. Translate the image.
translation: $(x, y) \rightarrow (x + 3, y - 4)$

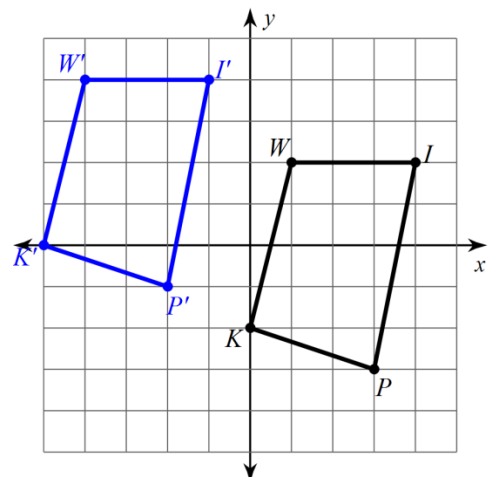
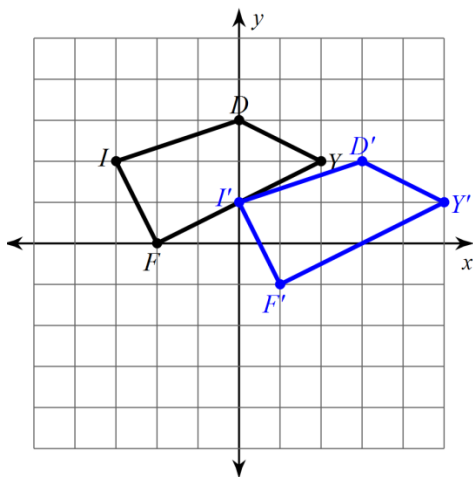
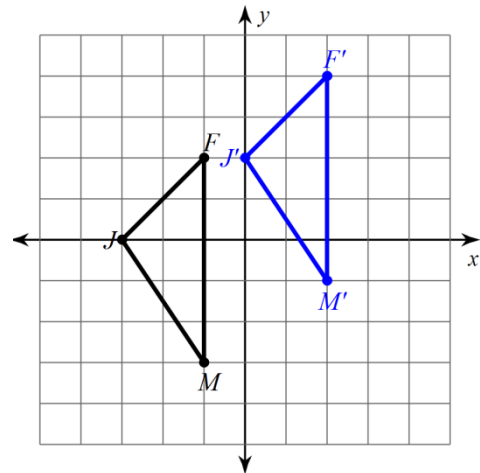


Write a rule for the given translation.

9.



10.



Find the coordinates of the vertices of each figure after the given transformation.

11. Reflection across the x-axis.

$$R(-2,2) \rightarrow$$

$$J(-1,4) \rightarrow$$

$$G(3,4) \rightarrow$$

12. Reflect across the y-axis.

$$H(1,-3) \rightarrow$$

$$Z(1,2) \rightarrow$$

$$W(4,1) \rightarrow$$

13. Reflect across the line $y = x$.

$$E(-4,-2) \rightarrow$$

$$N(-1,0) \rightarrow$$

$$A(1,-3) \rightarrow$$

14. Reflect across the line $y = -x$.

$$N(-4,2) \rightarrow$$

$$L(-1,3) \rightarrow$$

$$R(-1,2) \rightarrow$$

15. Reflect across the y-axis.

$$R(1,-5) \rightarrow$$

$$Y(0,-3) \rightarrow$$

$$U(2,0) \rightarrow$$

$$V(4,-2) \rightarrow$$

16. Reflect across the line $y = -x$.

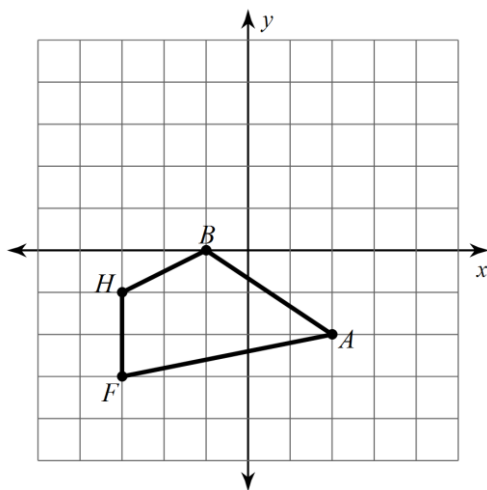
$$Z(-5,-2) \rightarrow$$

$$P(-5,2) \rightarrow$$

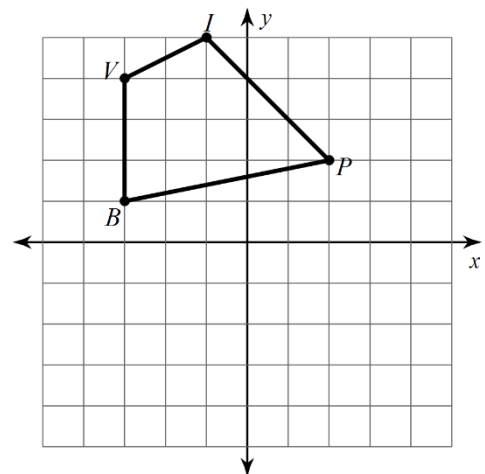
$$N(-3,3) \rightarrow$$

$$A(-2,0) \rightarrow$$

17. Reflect the image.
reflection across the y-axis



18. Reflect the image.
reflection across the x-axis



Write a rule to describe each transformation.

$$Z(0,-4) \rightarrow Z'(0,4)$$

19. $W(1,0) \rightarrow W'(1,0)$

$$S(3,0) \rightarrow S'(3,0)$$

$$Q(-4,-3) \rightarrow Q'(4,-3)$$

20. $S(-5,1) \rightarrow S'(5,1)$

$$L(-2,-1) \rightarrow L'(2,-1)$$

$$N(1,2) \rightarrow N'(1,-2)$$

21. $E(1,5) \rightarrow E'(1,-5)$

$$C(5,2) \rightarrow C'(5,-2)$$

$$J(1,2) \rightarrow J'(-1,2)$$

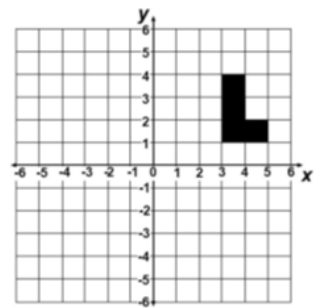
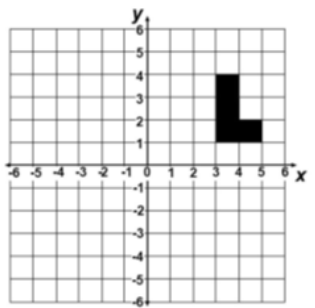
22. $S(1,5) \rightarrow S'(-1,5)$

$$X(5,2) \rightarrow X'(-5,2)$$

Where will the L-Shape be if it is...

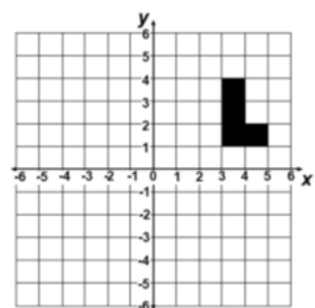
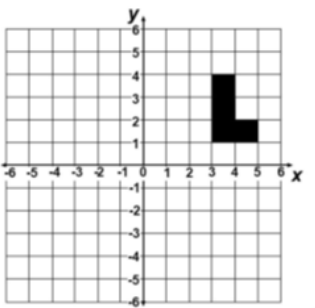
a. rotated 180° around the origin?

b. rotated 90° clockwise around the origin?



c. rotated 90° counterclockwise around the origin?

d. rotated 270° clockwise around the origin?



Find the angle of rotation for the graphs below. The center of rotation is the origin, and the Image labeled A is the preimage. Your answer will be 90°, 180°, or 270°.

a.

b.

c.

