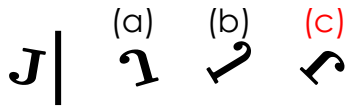
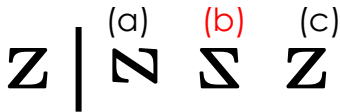


Name: KEY Date: \_\_\_\_\_

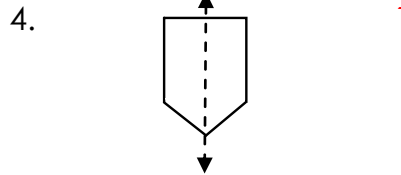
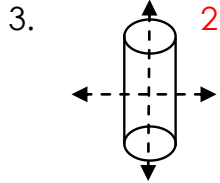
1. Which one of the images can be **rotated** to match the letter J on the left?



2. Which one of the images can be **reflected** to match the letter Z on the left?

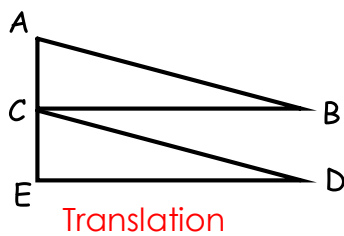


How many lines of symmetry does the given object appear to have?

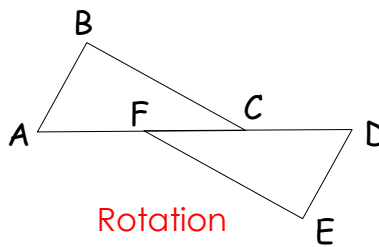


Name the transformation that maps:

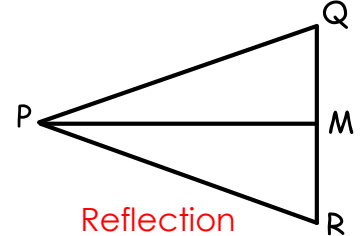
5.  $\triangle ABC \rightarrow \triangle CDE$



6.  $\triangle ABC \rightarrow \triangle DEF$

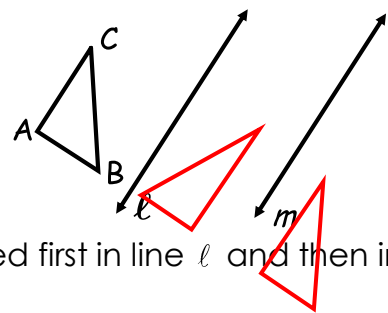


7.  $\triangle PMR \rightarrow \triangle PMQ$



8. In the diagram,  $\ell \parallel m$  and  $\triangle ABC$  is reflected first in line  $\ell$  and then in line  $m$ . This set of reflections is equivalent to doing what kind of singular transformation?

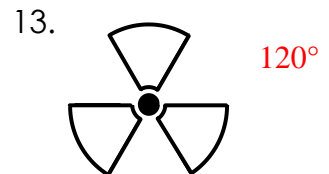
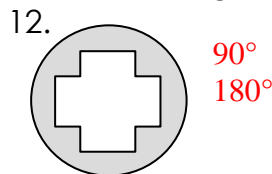
**Translation**



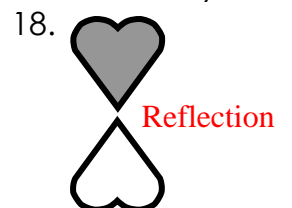
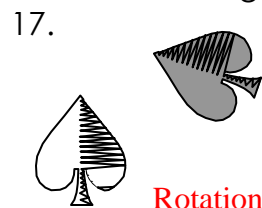
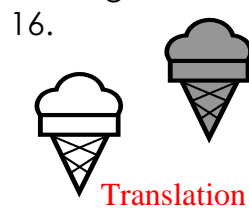
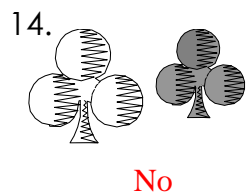
9. If  $\ell$  and  $m$  were intersecting lines, and  $\triangle ABC$  was reflected first in line  $\ell$  and then in line  $m$ , what would the resulting transformation be?

**Rotation**

Describe any **rotations** (of  $180^\circ$  or less) that will map each figure onto itself.

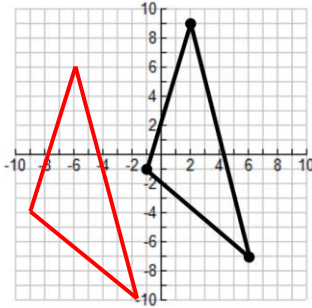


An isometry is a transformation in the plane that preserves length. Identify each **transformation** and each **isometry**. (Preimages are unshaded and images are shaded.)

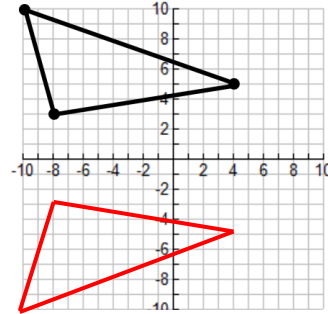


Draw the image of each figure, using the given transformation.

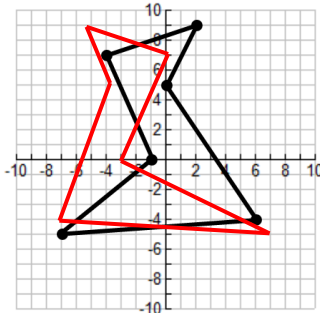
19. Translation  $(x, y) \rightarrow (x - 8, y - 3)$



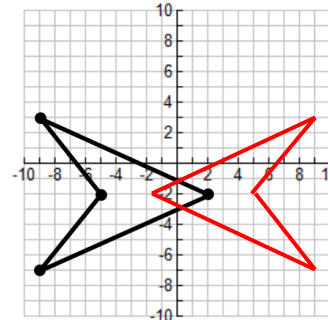
20. Reflection across the **x-axis**.



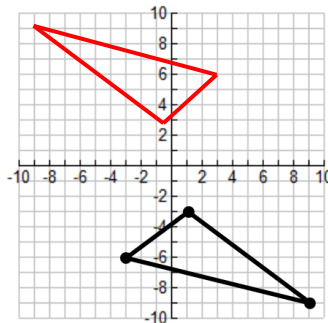
21. Reflection across the line **x = -2**



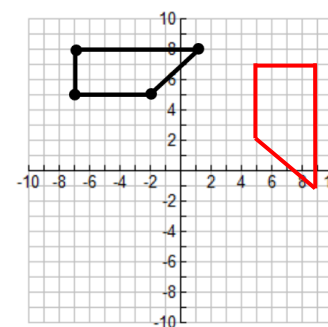
21. Reflection across the **y-axis**.



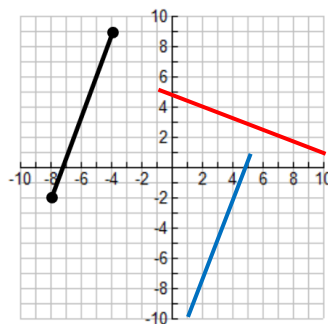
23. Rotation **180°** about the origin



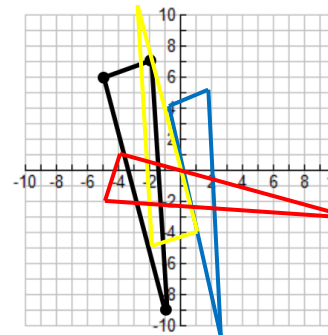
24. Rotation **90° clockwise** about the origin.



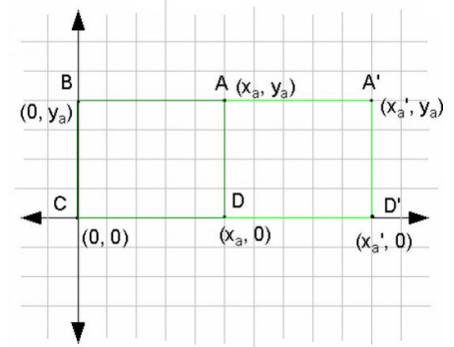
25. Translation  $(x, y) \rightarrow (x + 9, y - 8)$   
**Rotation 90° CCW** about the origin



26. Translation  $(x, y) \rightarrow (x + 4, y - 2)$   
**Rotation 180°** about the origin.  
 Reflection about the line **y = x**.



Examine the diagram. Note that B' is at the same point as B, and C' is at the same point as C, although these are not labeled.



27. Is this an isometry? Is it a dilation?

No No

28. What transformation has taken place to map ABCD to A'B'C'D'? Be specific.

Horizontal Stretch

29. Write the function/rule that maps ABCD to A'B'C'D'.

$(x, y) \rightarrow (2x, y)$

Specify if the following equations or graphs are **even, odd, or neither**.

30.  $y = 2x^3 - 4$

Neither

31.  $y = 5x^6 - 4x^2$

Even

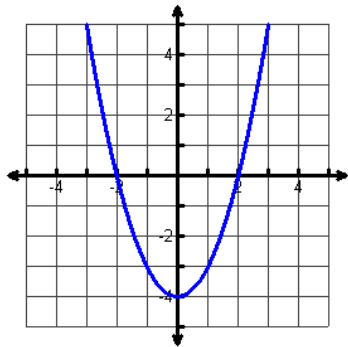
32.  $y = 10$

Even

33.  $y = \frac{1}{2}x$

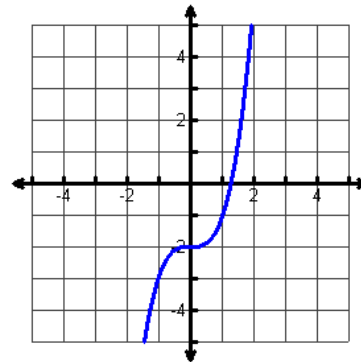
Odd

34.



Even

35.



Neither

36. Given  $f(x)$  is odd and point A(-4, 19) is a point on the function. Name another point on the **odd function**.  $(4, -19)$

37. Given  $h(x)$  is odd and point B(16, -21) is a point on the function. Name another point on the **odd function**.  $(-16, 21)$

38. Given  $f(x)$  is even and point C(-14, -16) is a point on the function. Name another point on the **even function**.  $(14, -16)$

39. Given  $f(x)$  is even and point D(34, 40) is a point on the function. Name another point on the **even function**.  $(-34, 40)$