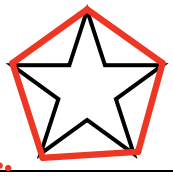
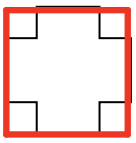
Unit 1 Transformations Review Name: _____ Block: __

Describe any rotations (of 180° or less) that will map each figure onto itself.

1. 

2. 

3. 

4. How many lines of symmetry does a square have?

4

5. How many lines of symmetry does a rectangle have?

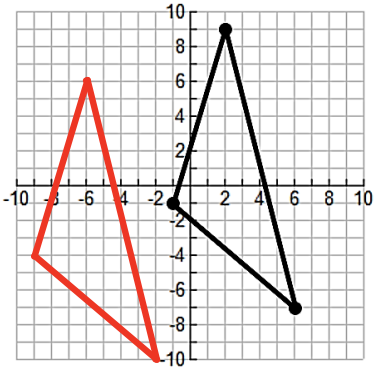
2

6. What geometric figure has an infinite number of lines of symmetry?

circle

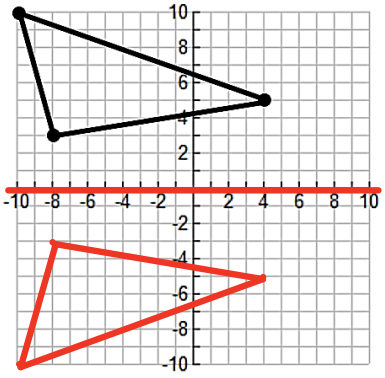
Draw the image of each figure, using the given transformation.

7. Translation (x, y) → (x – 8, y – 3)

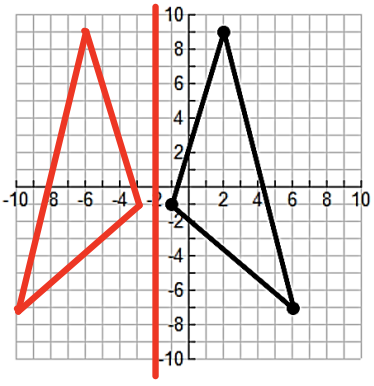


(-6,6)
(9,-4)
(-2,-10

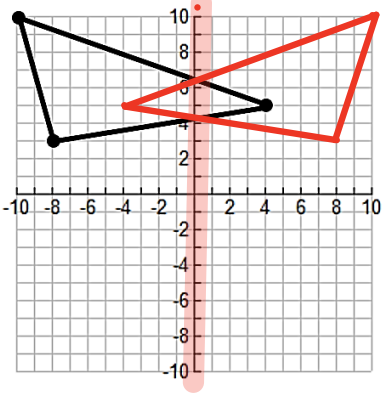
8. Reflection across the x-axis.



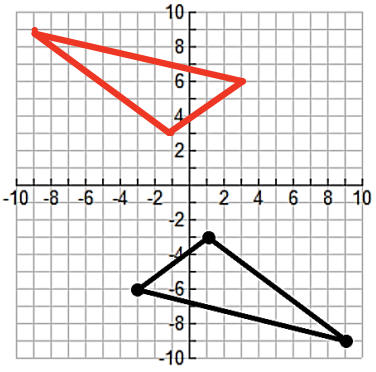
9. Reflection across the line x = -2



10. Reflection across the y-axis.

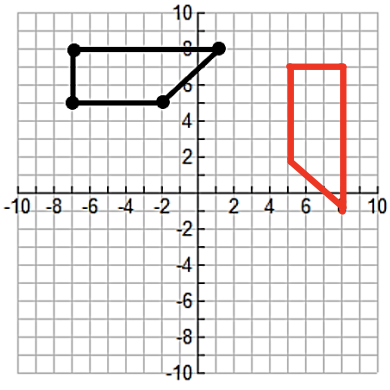


11. Rotation 180° about the origin



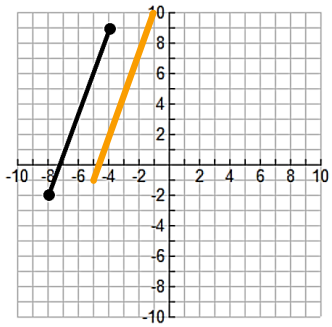
(-1,3)
(3,6)
(-9,9)

12. Rotation 90° clockwise about the origin.



(8,7)
(5,7)
(5,2)

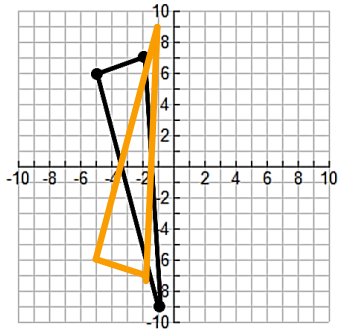
13. Translation (x, y) → (x + 9, y – 8) Rotation 180° about the origin.



(-4, 9)
(5, 1)
(-5, -1)

(-8, -2)
(1, -10)
(-1, 10)

14. Rotation 90° CCW about the origin Reflection about the line y = x.



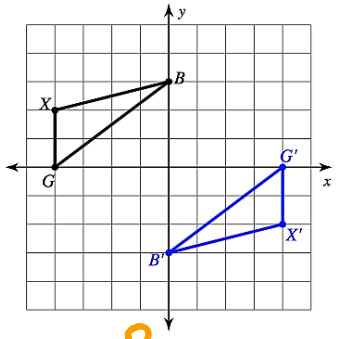
(-2, 7)
(-7, -2)
(-2, -7)

(-5, 6)
(-6, -5)
(-5, -6)

(-6, -9)
(9, -1)
(-1, 9)

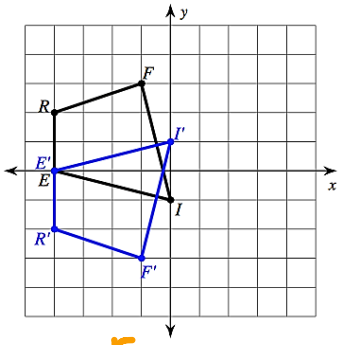
Write a rule to describe each transformation.

15.



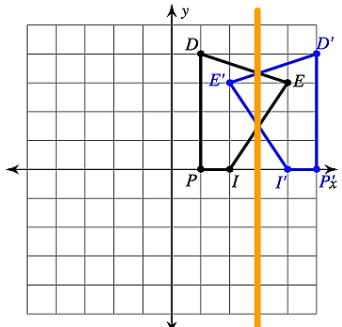
Rw

16.



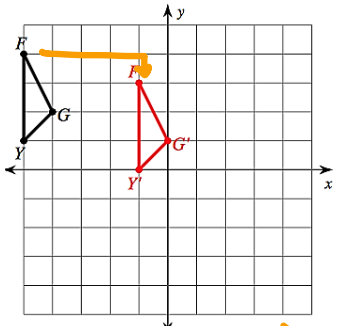
r_x

17.



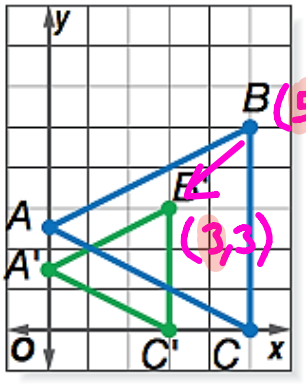
r x=3

18.



(x+4, y)

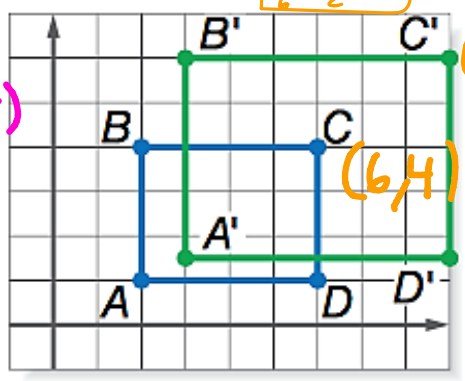
19.



3/5

B (5,5)
E' (3,3)
A
A'
C' C
o x

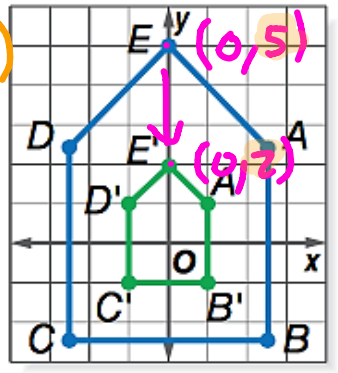
20.



9/6 = 3/2 = 1.5

B' C' (9,6)
B C (6,4)
A' D D'
A

21.



K = 2/5

E (0,5)
D A
E' (1,2)
A'
D'
o x
C' B'
C B

22. Apply the dilatation to triangle GHJ. Name the new points and state the scale factor.

$D(x, y) \rightarrow (1.5x, 1.5y)$

G(1, –2) → G'(1.5, -3)
H(1, –4) → H'(____, ____)
J(4, –2) → J'(____, ____)

Scale factor: 1.5

23. Apply the dilatation to triangle LMN. Name the new points and state the scale factor.

$D(x, y) \rightarrow \left(\frac{1}{3}x, \frac{1}{3}y\right)$

L(-3, 3)→ L'(-1, 1)
M(3, 6) → M'(____, ____)
N(3, -3) → N'(____, ____)

Scale factor: 1/3

24. What translation moves the point Q (–4, –3) to (9, 10)?

(x+13, y+13)

25. Using the form $T_{h,k}(x, y) = (x + h, y + k)$, how can we describe a translation that moves a point right 3 and down two units?

(x+3, y-2)

26. What are the coordinates of $R_{90}(R_{270}(x, y))$ if $(x, y) = (4,5)$?

(4, 5)

27. The point S (x, y) = (–x, y). What transformation is S?

r_y

28. An isometric transformation occurs when the preimage and image are congruent.

29. Which transformations are isometric?

rotations, reflections, translations