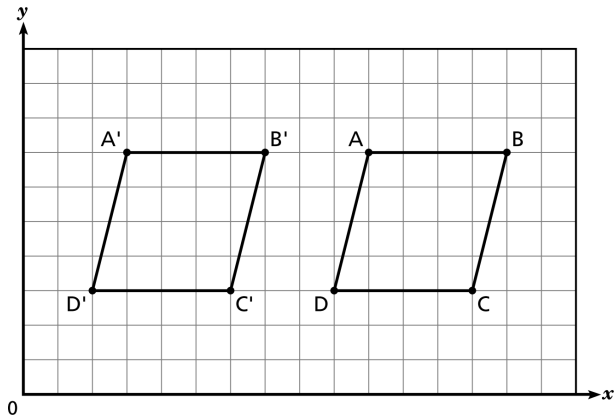


Transformations Worksheet

Name: _____

Date: _____

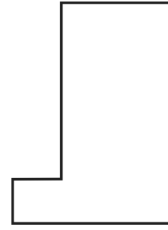
1. Parallelogram $ABCD$ was translated to parallelogram $A'B'C'D'$.




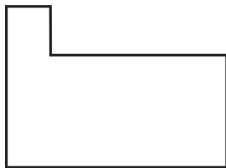
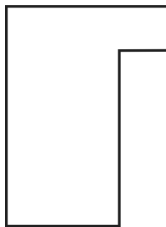
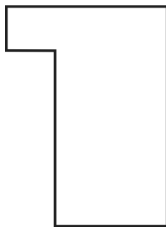
How many units and in which direction were the x -coordinates of parallelogram $ABCD$ moved?

- A. 3 units to the right B. 3 units to the left
C. 7 units to the right D. 7 units to the left

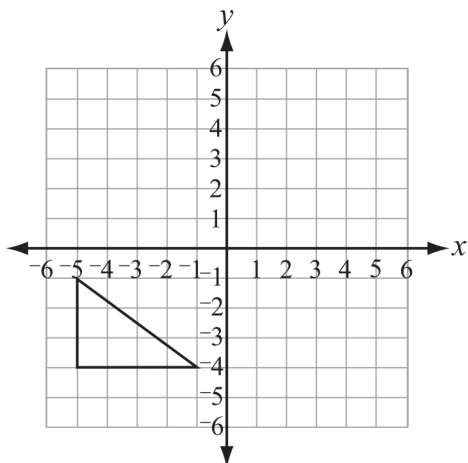
2. A shape is shown below.



Which shows this shape transformed by a flip?

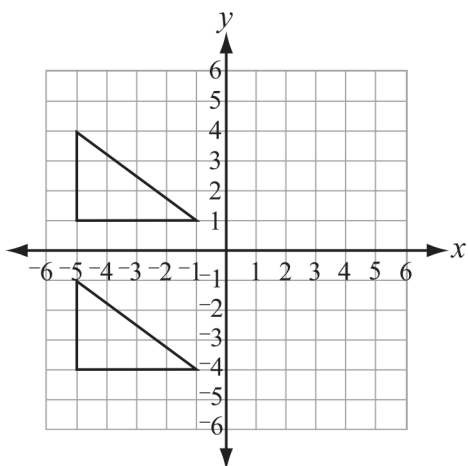
- A.  B. 
- C.  D. 

3. Joanne and Christopher are designing a quilt. They start by creating a triangle shape in the lower left quadrant as shown below.

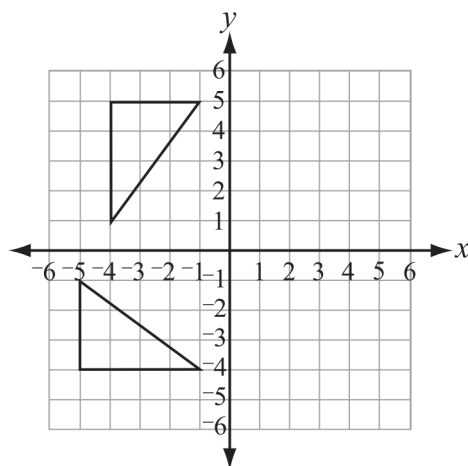


They transform it by rotating the triangle shown above 90° clockwise about the origin. What does the new design look like?

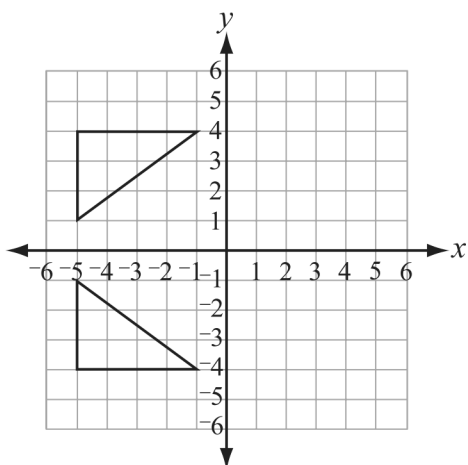
A.



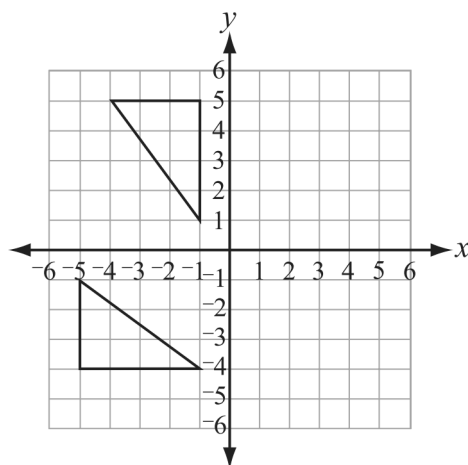
B.



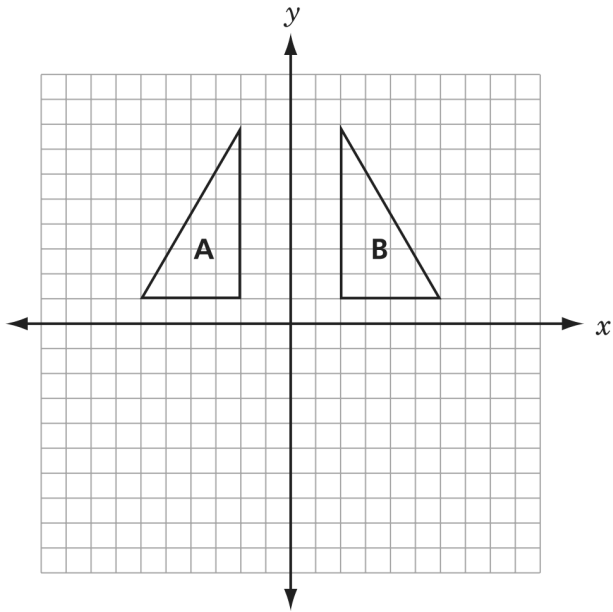
C.



D.



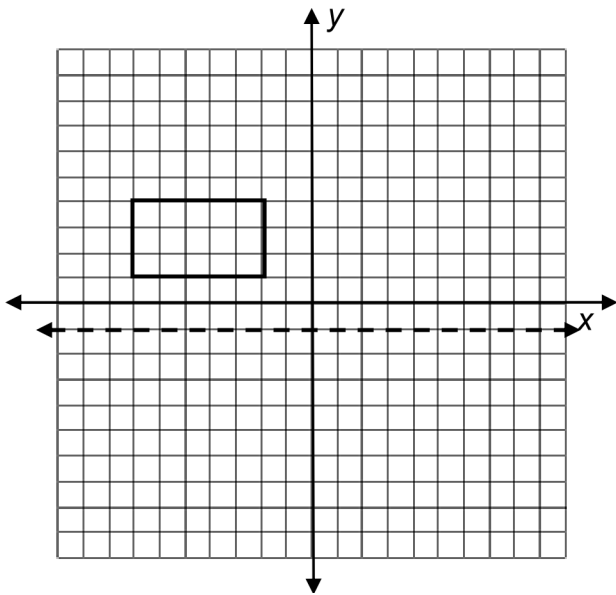
4. Alyssa made the design shown below.



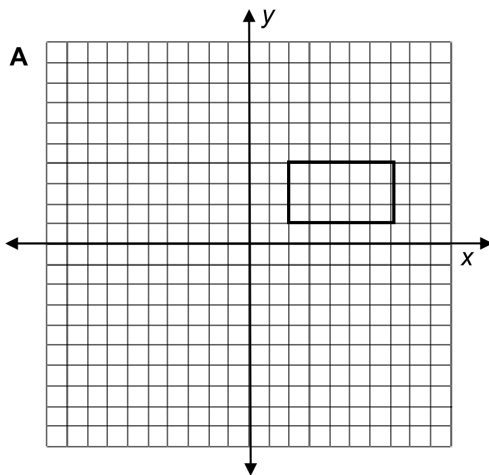
Which transformation could be used to show that figure A is congruent to figure B?

- A. add 5 to each x -coordinate
- B. multiply each y -coordinate by -1
- C. multiply each x -coordinate by -1
- D. rotate the figure 90 degrees about the origin

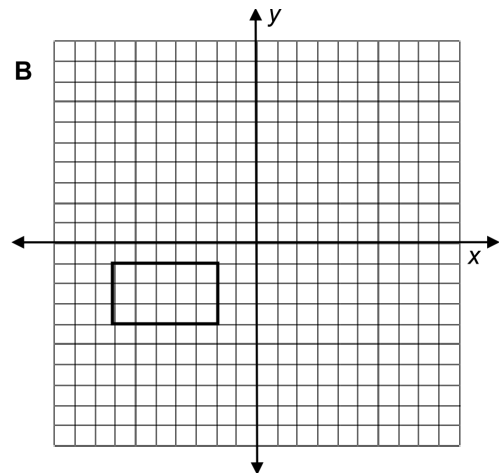
5. Which graph shows a reflection of the rectangle across the horizontal dotted line?



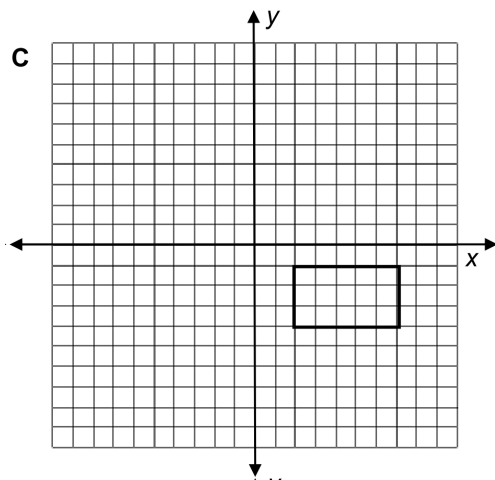
A.



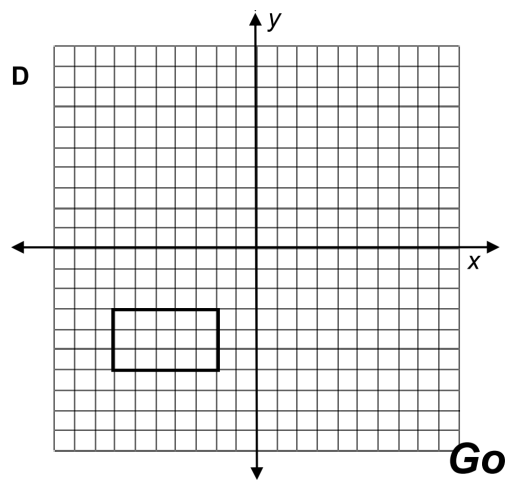
B.



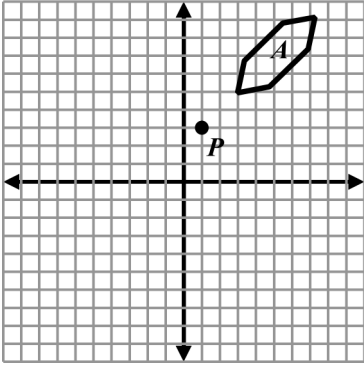
C.



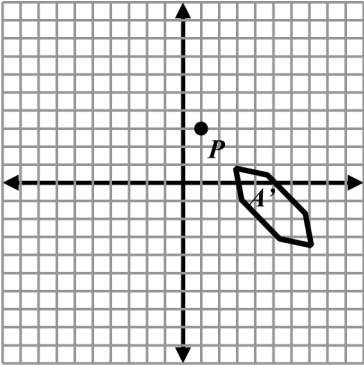
D.



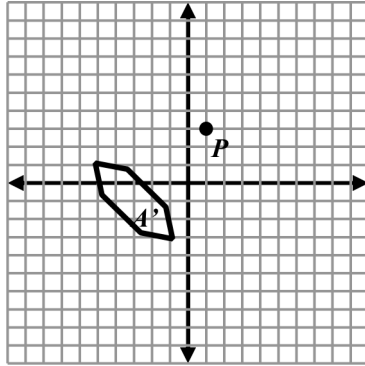
6. Polygon A will be rotated counter-clockwise 90° about point P to form polygon A'.



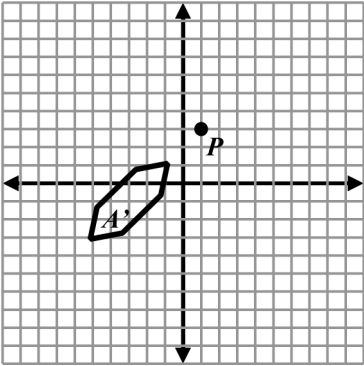
A.



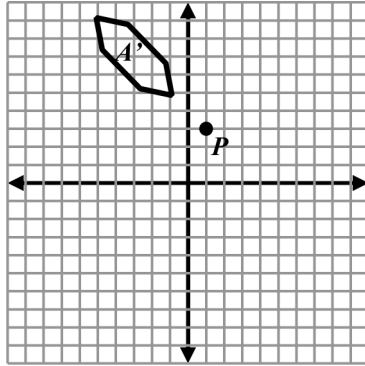
B.



C.

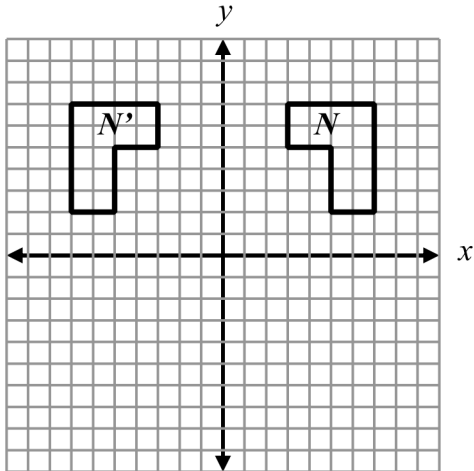


D.

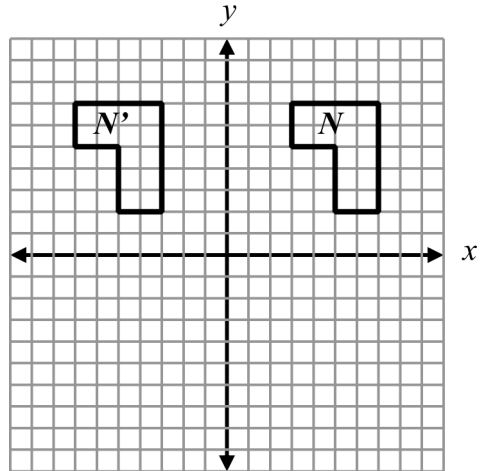


7. Which of the following is a single reflection of figure N over the y -axis to form N' ?

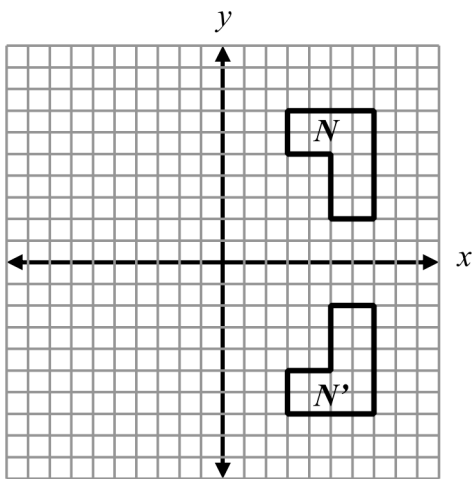
A.



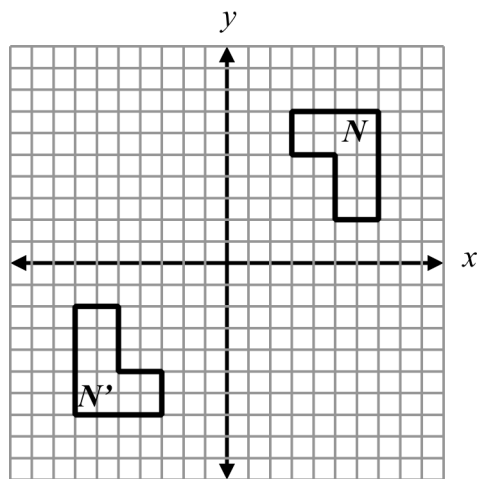
B.



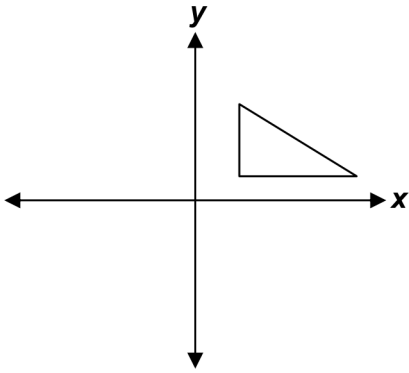
C.



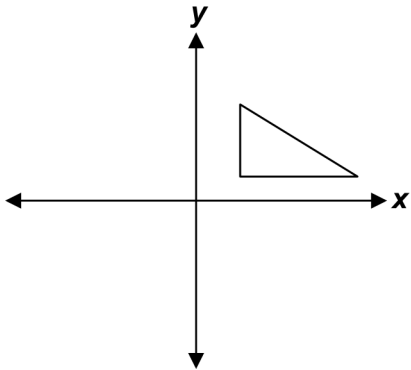
D.



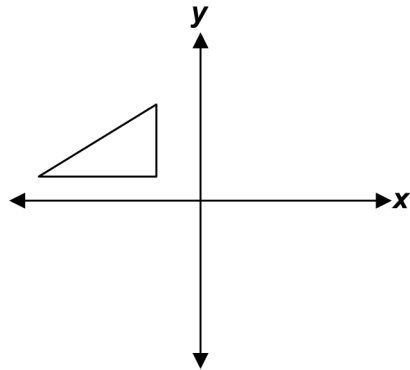
8. Which figure shows the triangle below reflected over the x -axis, then reflected over the y -axis?



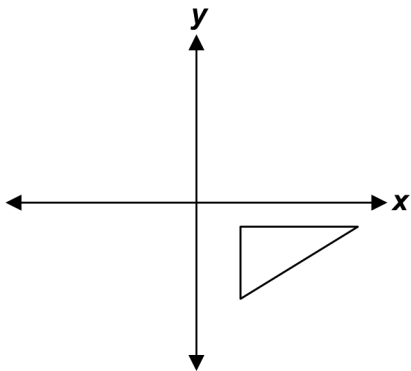
A.



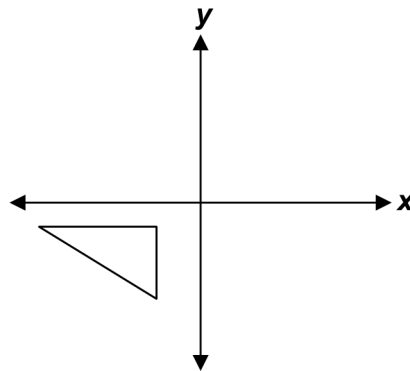
B.



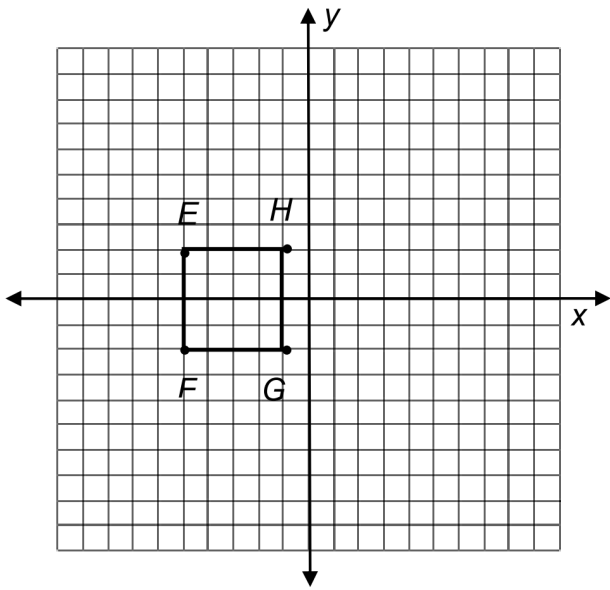
C.



D.



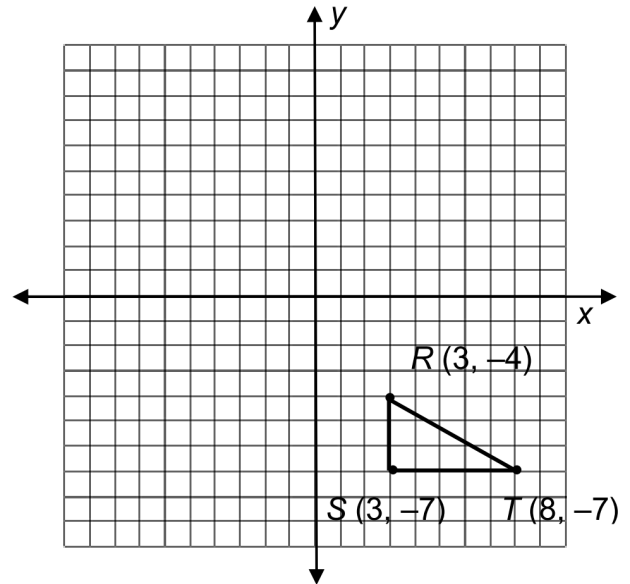
9. Figure $EFGH$ in the coordinate plane has vertices at $(-5, 2)$, $(-5, -2)$, $(-1, -2)$, and $(-1, 2)$.



If the figure is translated 5 units to the right and 2 units up, what are the coordinates of the $E'F'G'H'$?

- A. $(0, 4)$, $(0, 0)$, $(4, 0)$, $(4, 4)$
- B. $(-3, 7)$, $(-3, 3)$, $(1, 3)$, $(1, 7)$
- C. $(-10, 0)$, $(-10, 4)$, $(-6, -4)$, $(-6, 0)$
- D. $(-7, -3)$, $(-7, -7)$, $(-3, -7)$, $(-3, -3)$

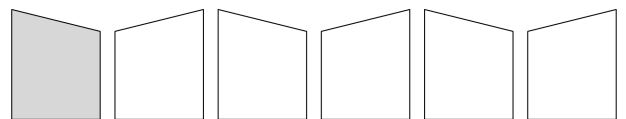
10. Triangle RST is shown in the coordinate plane.



What are the coordinates of $R'S'T'$ if the figure is reflected over the x -axis and translated down two units?

- A. $(1, -6)$, $(1, -9)$, $(6, -9)$
- B. $(3, 4)$, $(3, 7)$, $(8, 7)$
- C. $(1, 2)$, $(1, 5)$, $(6, 5)$
- D. $(3, 2)$, $(3, 5)$, $(8, 5)$

11. The shaded piece has been transformed into a frieze pattern.



Which transformations *best* describe how the pattern was created?

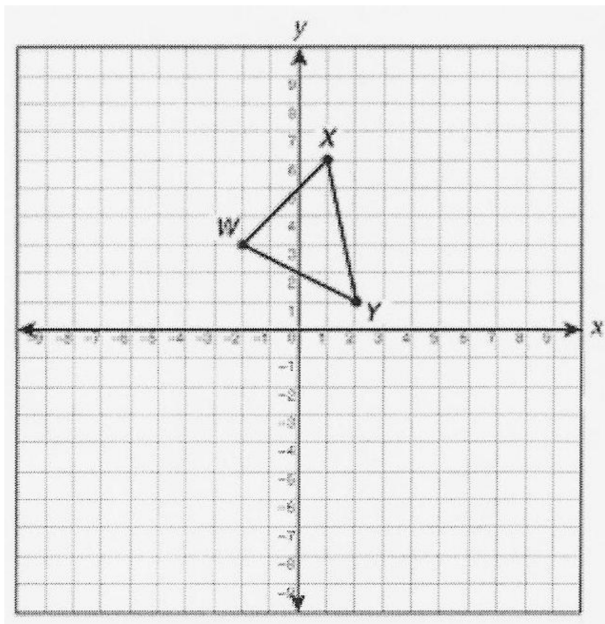
- A. reflections
- B. translations
- C. reflections and rotations
- D. translations and rotations

12. Which of the following transformations always preserves the dimensions of a figure?

- I. translation
- II. rotation
- III. reflection
- IV. dilation

- A. I, II, and III B. I, II, and IV
C. I, III, and IV D. II, III, and IV

13. What is the apparent image of X when triangle WXY is translated 2 units down and 5 units right?



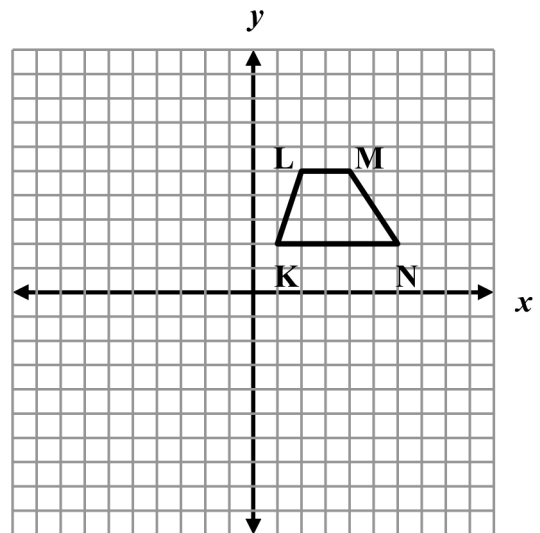
- A. (1, 3) B. (3, 1) C. (4, 6) D. (6, 4)

14. If a polygon is translated, which of the following characteristics of the polygon are the same?

- I. Side lengths
- II. Area
- III. The coordinates of the vertices.

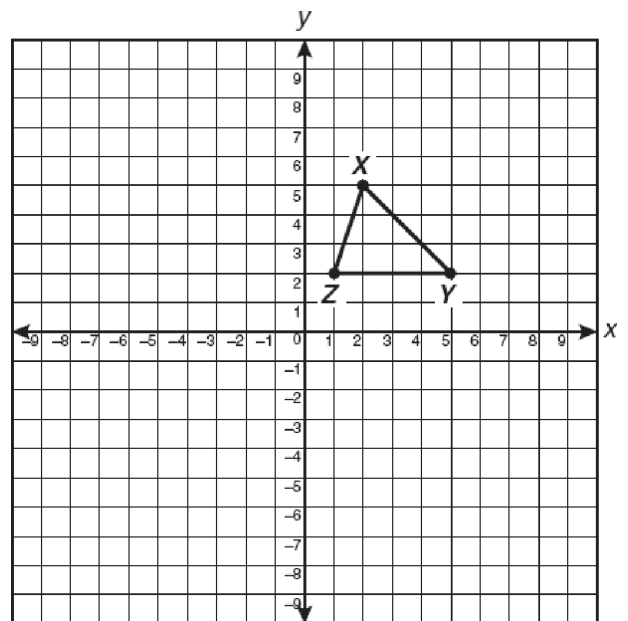
- A. I, II, III B. II and III
C. I and III D. I and II

15. If trapezoid $KLMN$ shown below is reflected across the x -axis to form trapezoid $K'L'M'N'$, what are the apparent coordinates of M' ?



- A. $(-4, 5)$ B. $(-4, -5)$
C. $(4, -5)$ D. $(4, 5)$

16. $\triangle XYZ$ is translated 3 units to the right and 2 units down.



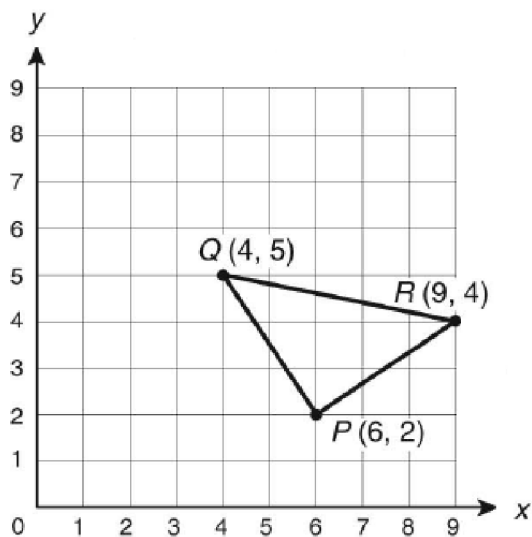
What will be the apparent coordinates of the image of point X ?

- A. $(0, 8)$ B. $(3, 5)$ C. $(5, 3)$ D. $(8, 0)$

17. Figure $EFGH$ has a perimeter of 40 cm and an area of 96 cm^2 . It is dilated by a factor of $\frac{1}{4}$ to create figure $E'F'G'H'$. What statement about the perimeter (P) and the area (A) of figure $E'F'G'H'$ is true?

- A. $P = 10 \text{ cm}$; $A = 6 \text{ cm}^2$
- B. $P = 10 \text{ cm}$; $A = 24 \text{ cm}^2$
- C. $P = 160 \text{ cm}$; $A = 192 \text{ cm}^2$
- D. $P = 160 \text{ cm}$; $A = 384 \text{ cm}^2$

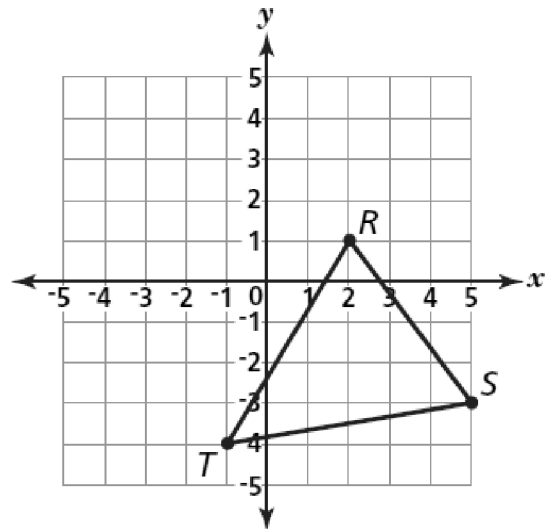
18. Triangle PQR is shown.



What are the coordinates of P' when $\triangle PQR$ is dilated by a scale factor of 3 using the origin as the center?

- A. $(6, 18)$
- B. $(3, \frac{2}{3})$
- C. $(\frac{2}{3}, 3)$
- D. $(18, 6)$

19. Study $\triangle RST$ on the grid below.



When $\triangle RST$ is translated 4 units down, what are the apparent coordinate of T' ?

- A. $(-8, -1)$
- B. $(-4, -1)$
- C. $(-1, -8)$
- D. $(0, -4)$

20. A polygon has been rotated about the origin. Which statement must be true?

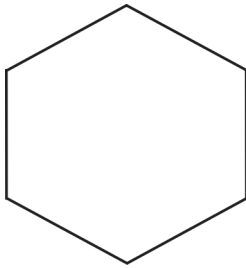
- A. The lengths of the sides are doubled.
- B. The area of the polygon did not change.
- C. The coordinates of the vertices did not change.
- D. The area of the polygon is 4 Times its original area.

21. Three transformations will be performed on triangle ABC . Which set of transformations will always produce a congruent triangle?

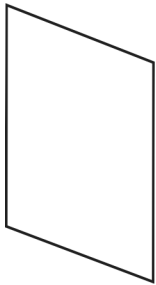
- A. dilation, rotation, translation
- B. reflection, dilation, translation
- C. rotation, reflection, dilation
- D. rotation, translation, reflection

22. Which figure has a line of symmetry and rotational symmetry?

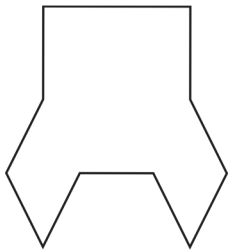
A.



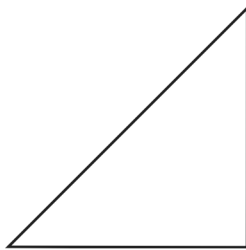
B.



C.



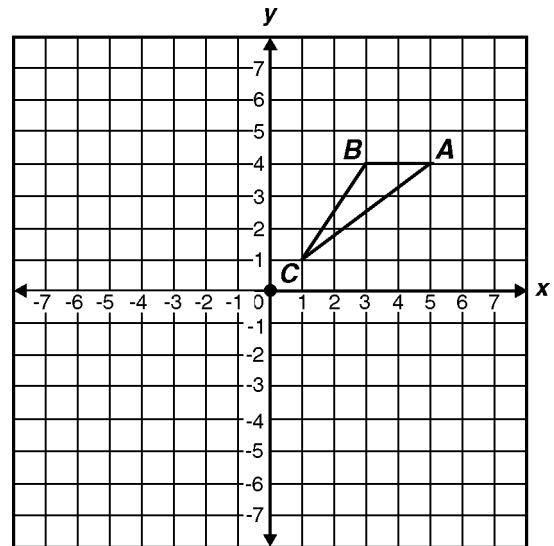
D.



23. The vertices of $\triangle ABC$ are $A(2, 1)$, $B(3, 4)$, and $C(1, 3)$. If $\triangle ABC$ is translated 1 unit down and 3 units to the left to create $\triangle DEF$, what are the coordinates of the vertices of $\triangle DEF$?

- A. $D(0, 1)$, $E(1, 2)$, $F(1, 3)$
 B. $D(0, -1)$, $E(0, 3)$, $F(-2, -2)$
 C. $D(-2, 2)$, $E(0, 3)$, $F(-1, 0)$
 D. $D(-1, 0)$, $E(0, 3)$, $F(-2, 2)$

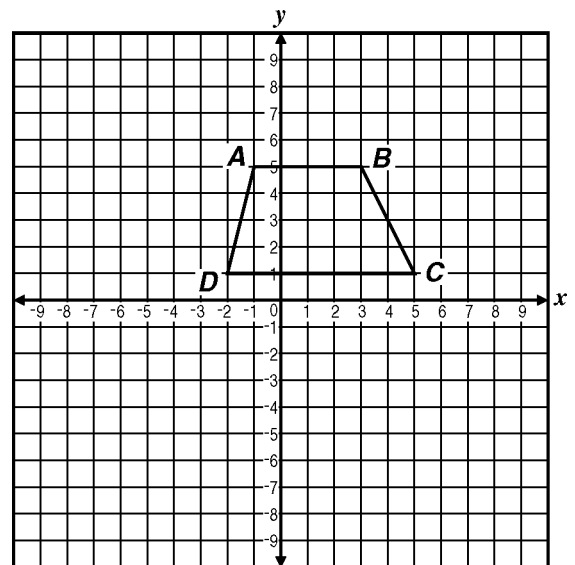
24. If triangle ABC is rotated 180 degrees about the origin, what are the coordinates of A' ?



- A. $(-5, -4)$ B. $(-5, 4)$
 C. $(-4, 5)$ D. $(-4, -5)$

25. Trapezoid $ABCD$ below is to be translated to trapezoid $A'B'C'D'$ by the following motion rule.

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



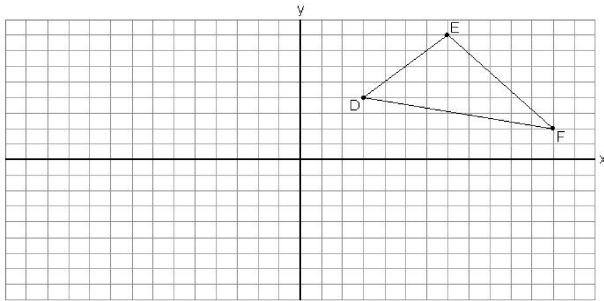
What will be the coordinates of vertex C' ?

- A. $(1, -3)$ B. $(2, 1)$
 C. $(6, 1)$ D. $(8, -3)$

26. Which expression describes the translation of a point from $(-3, 4)$ to $(4, -1)$

- A. 7 units left and 5 units up
- B. 7 units right and 5 units up
- C. 7 units left and 5 units down
- D. 7 units right and 5 units down

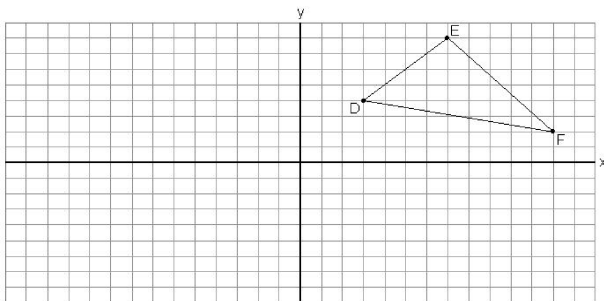
27.



Triangle DEF is reflected on the y -axis to form triangle $D'E'F'$, what is the relationship of the coordinates of $\triangle DEF$ and $\triangle D'E'F'$?

- A. The x -coordinates are the same on both triangles while the y -coordinates are opposites.
- B. The x -coordinate and the y -coordinates are equal to each other in the triangles.
- C. The y -coordinates are the same on both triangles while the x -coordinates are opposites.
- D. There is no relationship between the coordinates

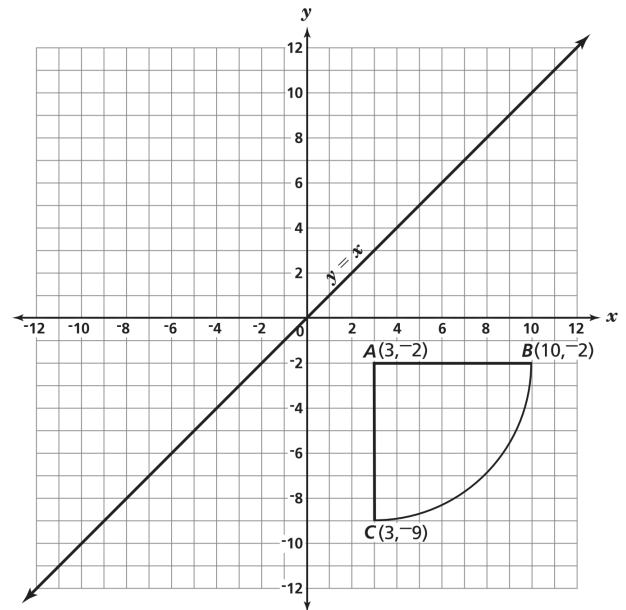
28.



Triangle DEF is reflected on the y -axis to create another triangle, what are the coordinates of point D in the reflected triangle?

- A. $(3, 4)$
- B. $(3, -4)$
- C. $(-3, -4)$
- D. $(-3, 4)$

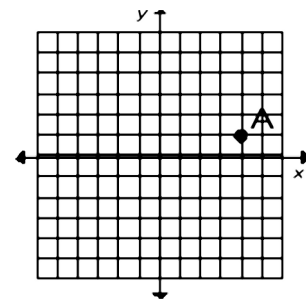
29. Coach Nelson is designing a new park that will have both a baseball diamond and a softball diamond. The baseball diamond will have the same dimensions as the softball diamond. A diagram of the park with the placement of the softball diamond is shown below.



The position of the baseball diamond will be determined by the reflection of the image of the softball diamond about the line $y = x$. What are the coordinates of the reflected image of point C ?

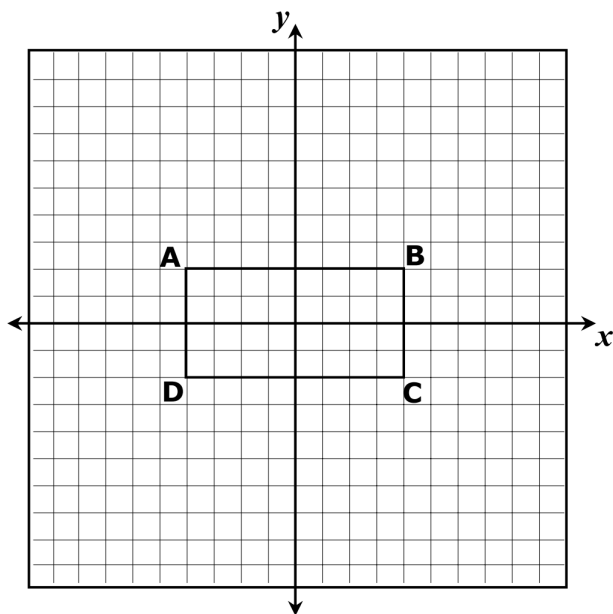
- A. $(3, 9)$
- B. $(-9, 3)$
- C. $(-9, 3)$
- D. $(3, 9)$

30. What is the reflection across the x axis of point $A(4, 1)$?



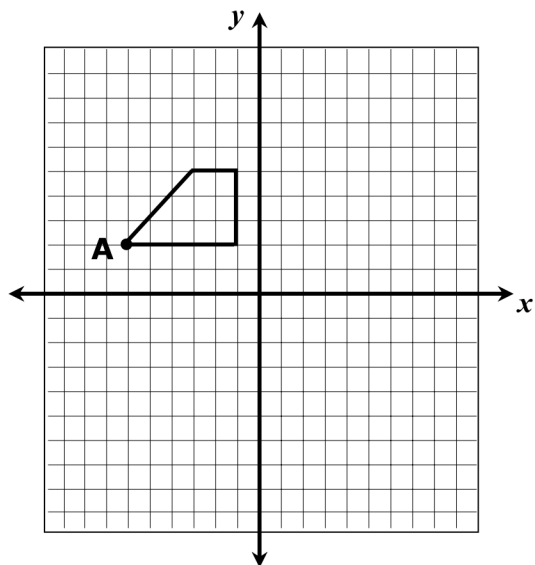
- A. $(0, -1)$
- B. $(-4, 1)$
- C. $(-4, -1)$
- D. $(4, -1)$

31. Use this graph to answer the question.



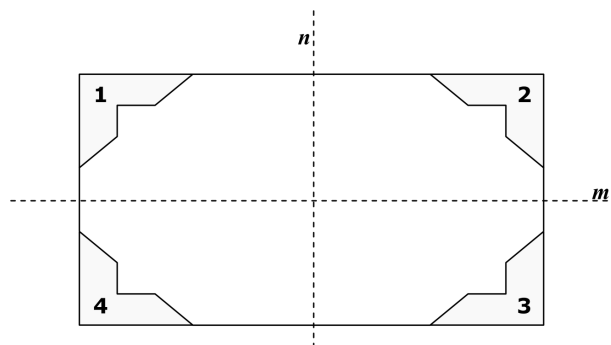
A dilation of scale factor 2 is applied to rectangle ABCD, centered at the origin. What are the coordinates of B'?

32. The trapezoid is translated 7 units to the right, and then reflected across the x -axis.



Which ordered pair describes the image of point A?

33. Jody has corners for a picture frame.



Which transformation could she use to show that corners 1 and 2 are congruent?

- A. reflection across line m
- B. reflection across line n
- C. translation to the right
- D. rotation 180 degrees clockwise