Key

Math 1

Name_____

5-1 Transformations Practice

Date_____

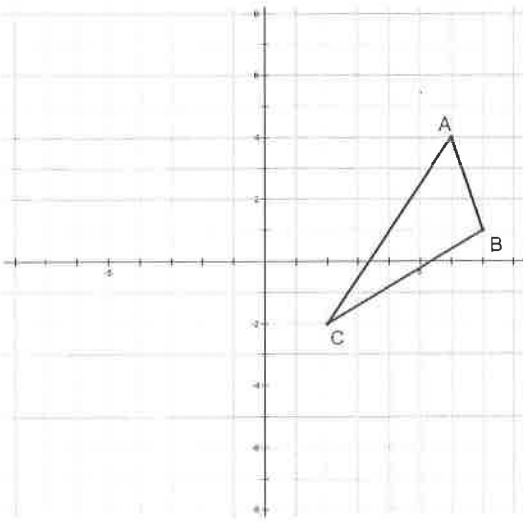
- *I can draw a transformation when given a geometric figure and a rotation, reflection or translation.*
- *I can predict and verify the sequence of transformations that will map a figure onto another.*
- *I can define rigid motion as reflections, rotations, translations, and combinations of these, all of which preserve distance and angle measure.*
- *I can determine the coordinates for the image of a figure when a transformation rule is applied to the preimage.*
- *I can draw transformations of reflections, rotations, translations, and combinations of these using graph paper and/or geometry software.*

1. List the vertices of the below figure:

$A = (6, 4)$

$B = (7, 1)$

$C = (2, -2)$

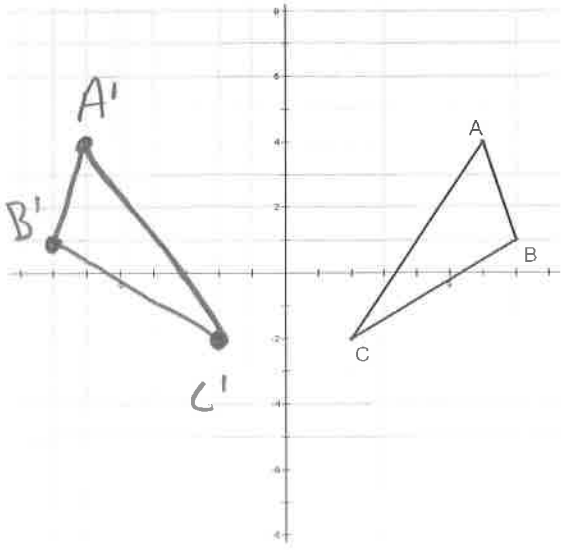


2. Reflect triangle ABC over the *y*-axis below. Also list the coordinates of the image below.

$A' = (-6, 4)$

$B' = (-7, 1)$

$C' = (-2, -2)$

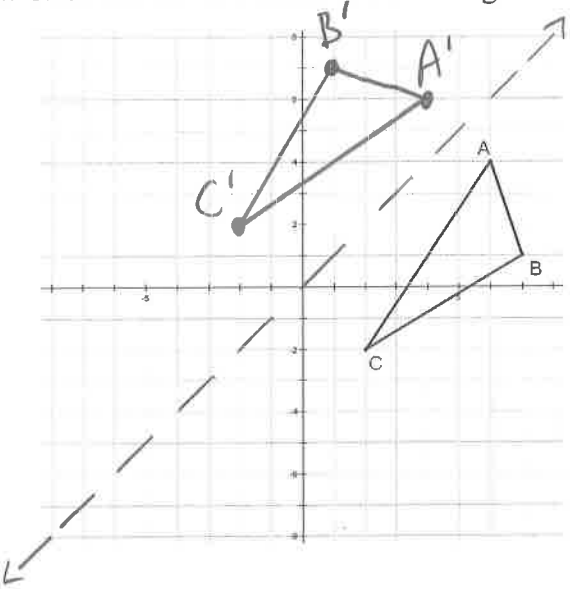


3. Reflect triangle ABC over the line $y = x$. Also list the coordinates of the image below.

$A' = (4, 6)$

$B' = (1, 7)$

$C' = (-2, 2)$

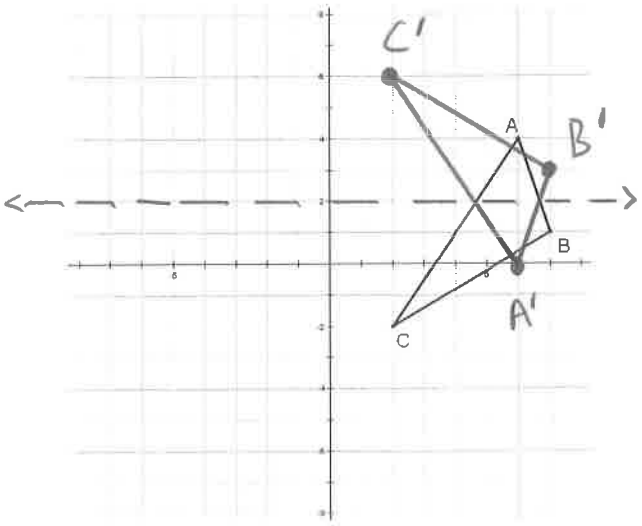


4. Reflect triangle ABC over the line $y = 2$. Also list the coordinates of the image below.

$A' = (6, 0)$

$B' = (7, 3)$

$C' = (2, 6)$

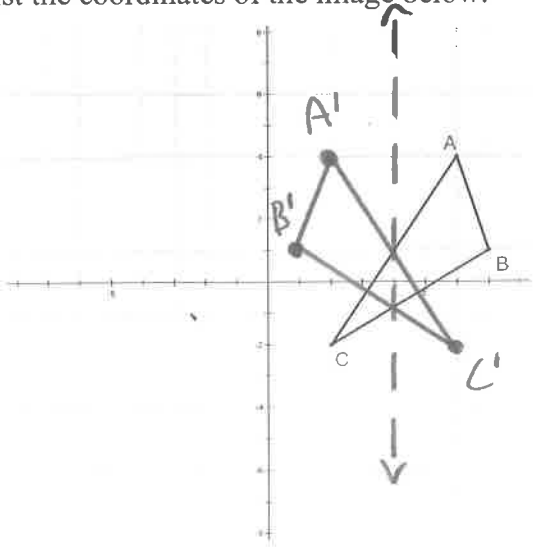


5. Reflect triangle ABC over the line $x = 4$. Also list the coordinates of the image below.

$A' = (2, 4)$

$B' = (1, 1)$

$C' = (6, -2)$

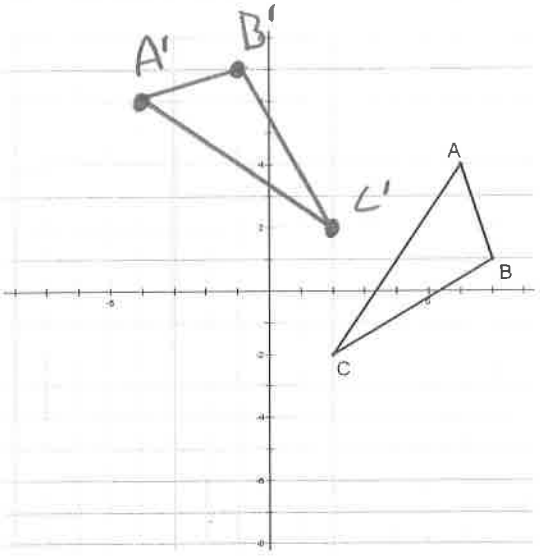


6. Rotate triangle ABC 90° counterclockwise. Also list the coordinates of the image below.

$A' = (-4, 6)$

$B' = (-1, 7)$

$C' = (2, 2)$

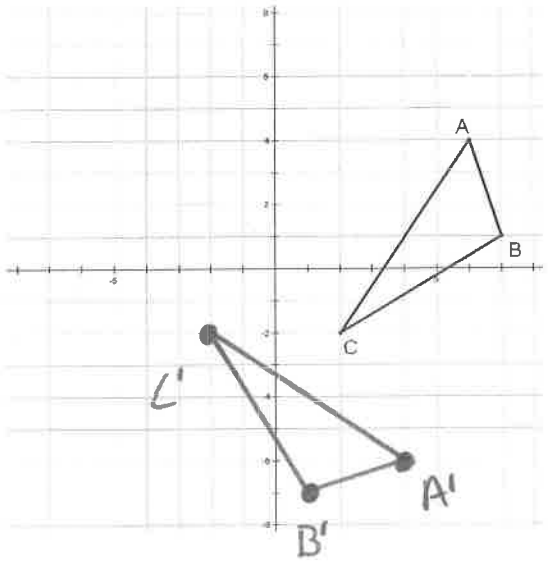


7. Rotate triangle ABC 270° counterclockwise. Also list the coordinates of the image below.

$A' = (4, -6)$

$B' = (1, -7)$

$C' = (-2, -2)$

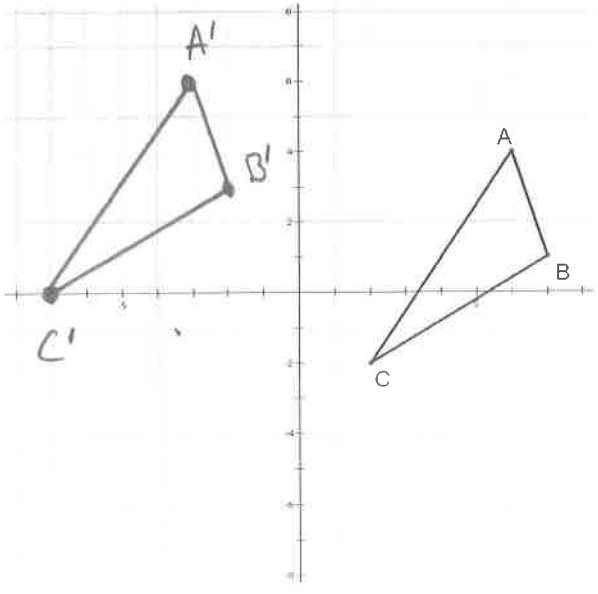


8. Translate triangle ABC -9 units horizontally and 2 units vertically. Also list the coordinates of the image below.

$A' = (-3, 6)$

$B' = (-2, 3)$

$C' = (-7, 0)$

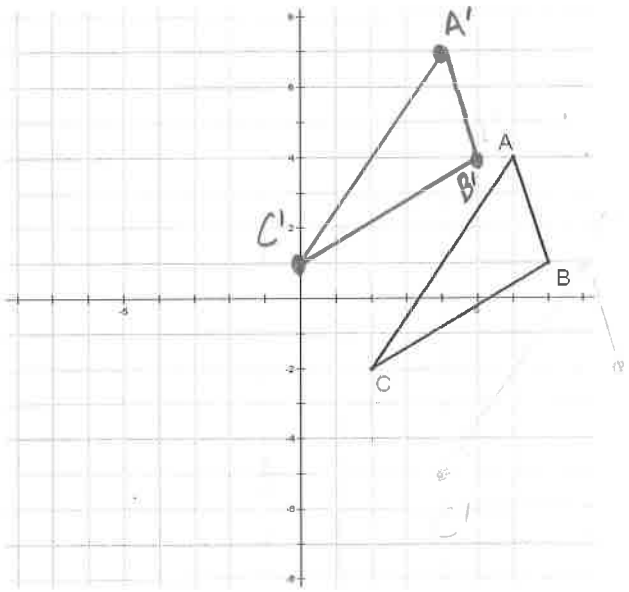


9. Translate triangle ABC 2 units horizontally and +3 units vertically. Also list the coordinates of the image below.

$A' = (4, 7)$

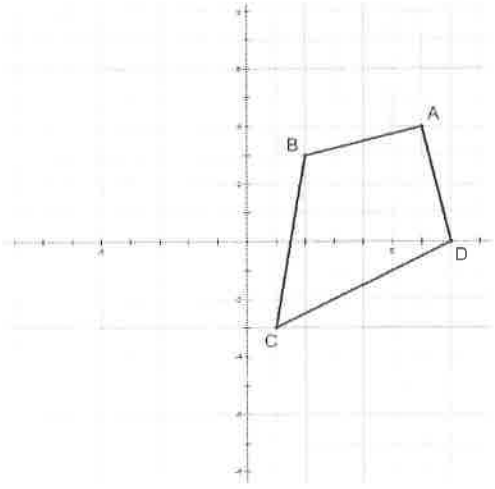
$B' = (5, 4)$

$C' = (0, 1)$



10. Find the coordinates of the vertices of the below figure:

A = (6, 4) B = (2, 3) C = (1, −3) D = (7, 0)



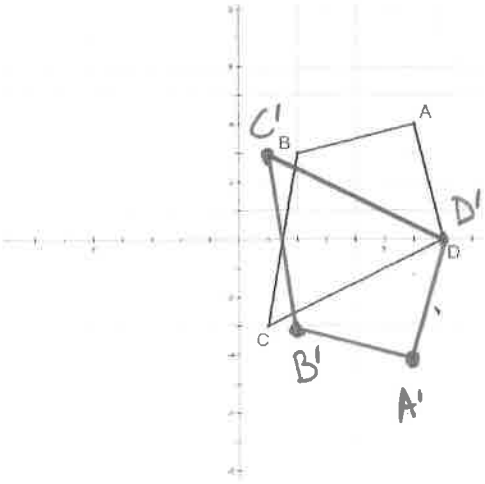
11. Reflect the below figure over the x-axis.

A'(6, −4)

B'(2, −3)

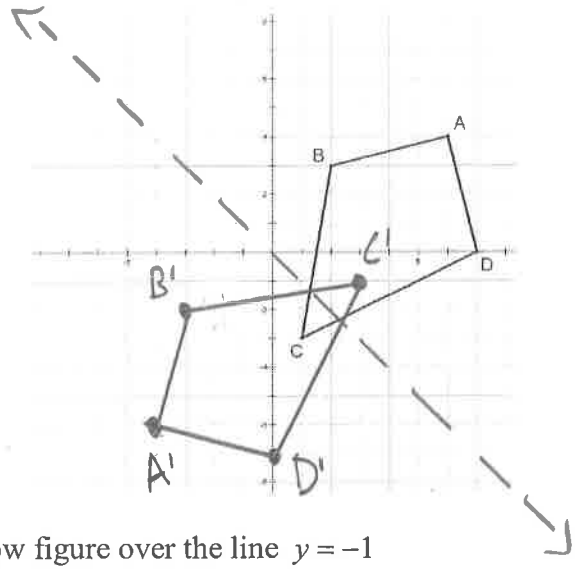
C'(1, 3)

D'(7, 0)



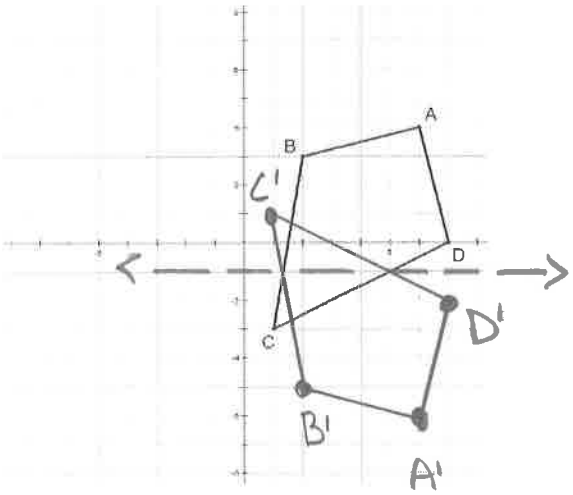
12. Reflect the below figure over the line $y = -x$

A' (-4, -6)
B' (-3, -2)
C' (3, -1)
D' (0, -7)



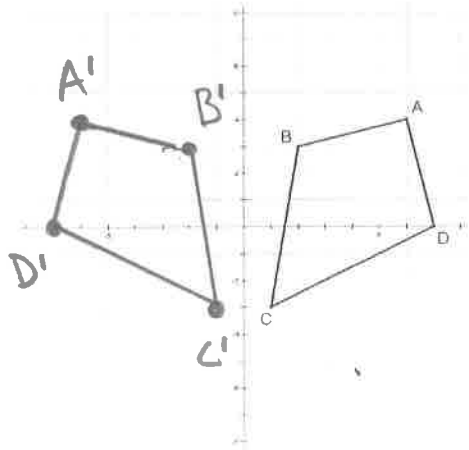
13. Reflect the below figure over the line $y = -1$

A' (6, -6)
B' (2, -5)
C' (1, 1)
D' (1, -2)



14. Perform the following transformation on the below figure: $(x, y) \rightarrow (-x, y)$

A' (-6, 4)
B' (-2, 3)
C' (-1, -3)
D' (-7, 0)



What type of transformation did you just perform?

Reflection over the y-axis.

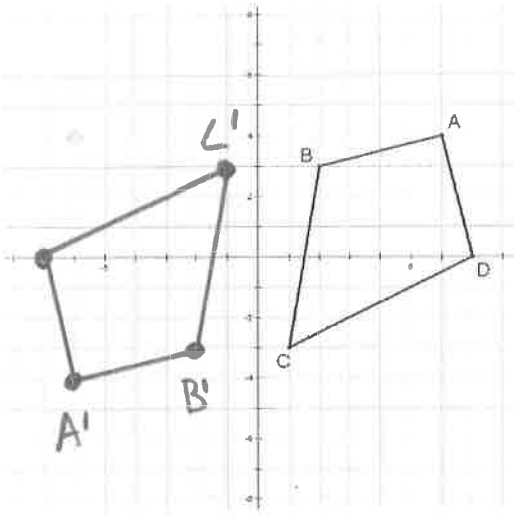
15. Perform the following transformation on the below figure: $(x, y) \rightarrow (-x, -y)$

A'(-6, -4)

B'(-2, -3)

C'(-1, 3)

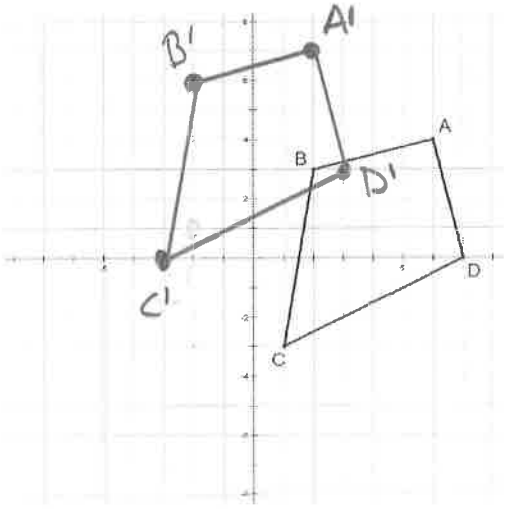
D'(-7, 0)



What type of transformation did you just perform?

180° rotation

16. Perform the following transformation on the below figure: $(x, y) \rightarrow (x-4, y+3)$



What type of transformation did you just perform?

Oblique translation

(Left 4 + up 3)

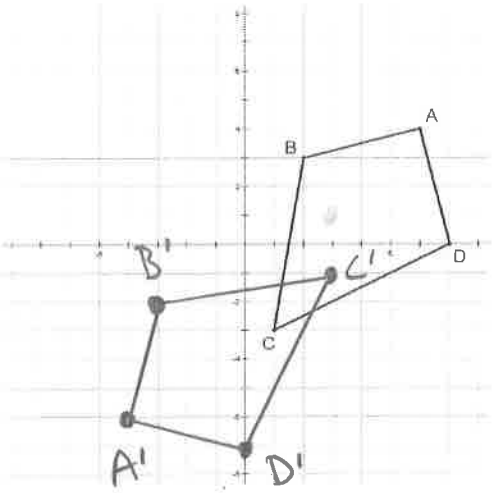
17. Perform the following transformation on the below figure: $(x, y) \rightarrow (-y, -x)$

A'(-4, -6)

B'(-3, -2)

C'(3, -1)

D'(0, -7)

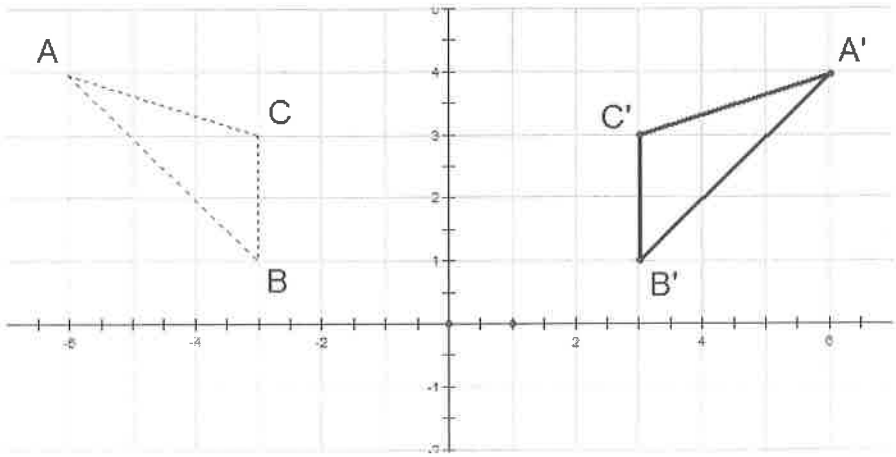


What type of transformation did you just perform?

Reflection over $y = -x$.

Write a transformation rule for the transformations below. The pre-image is the figure with the dashed lines; the image is the figure with the solid lines.

18.

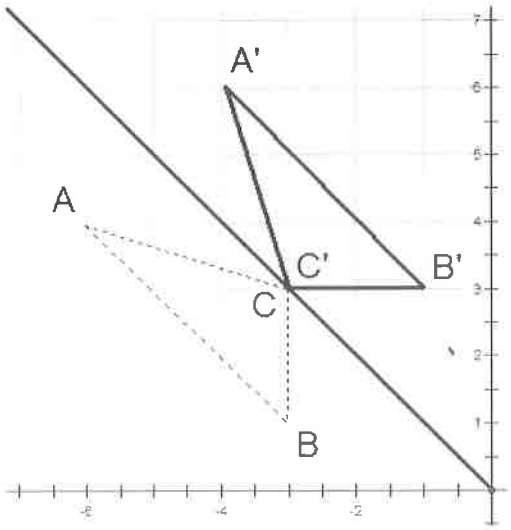


Transformation:

Reflect over y-axis

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

19.

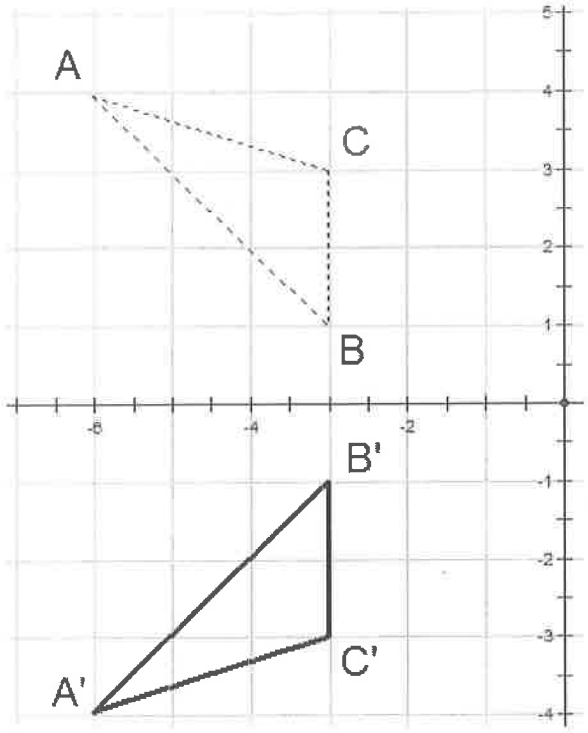


Transformation:

Reflect over $y = -x$

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

20.

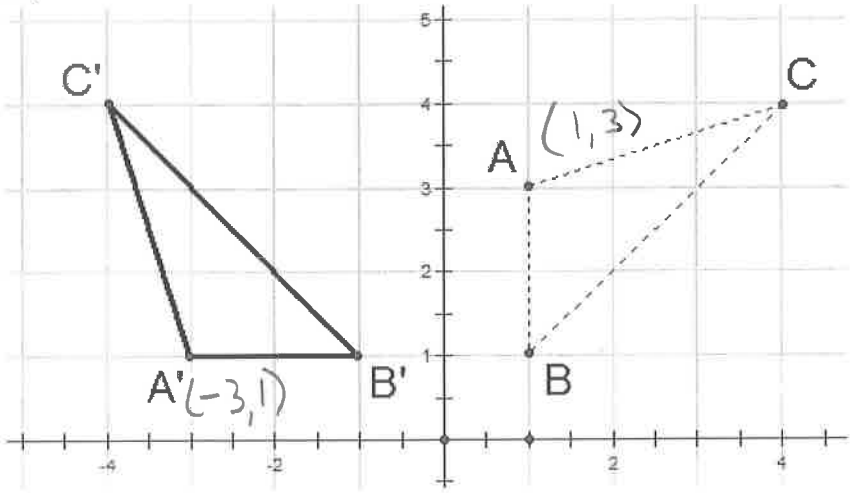


Transformation:

Reflect over x-axis

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

21.



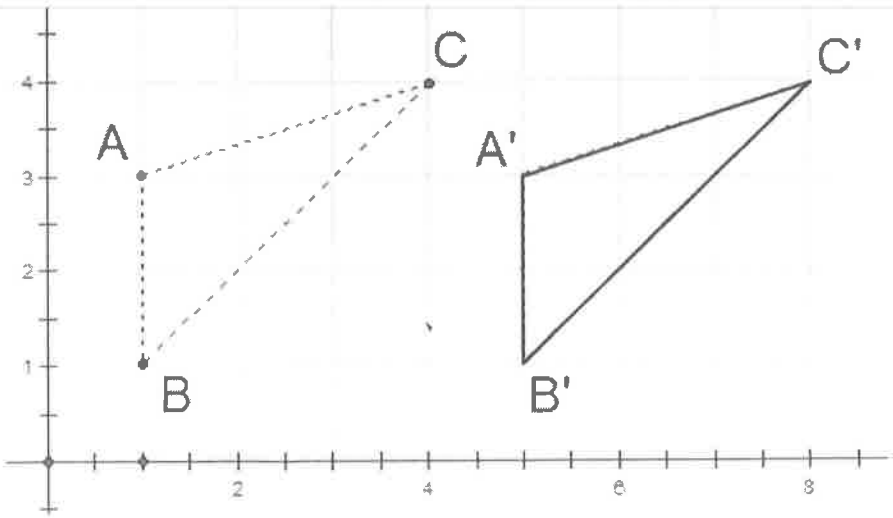
Transformation:

90° rotation CCW (counter-clockwise)

or 270° CW

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

22.

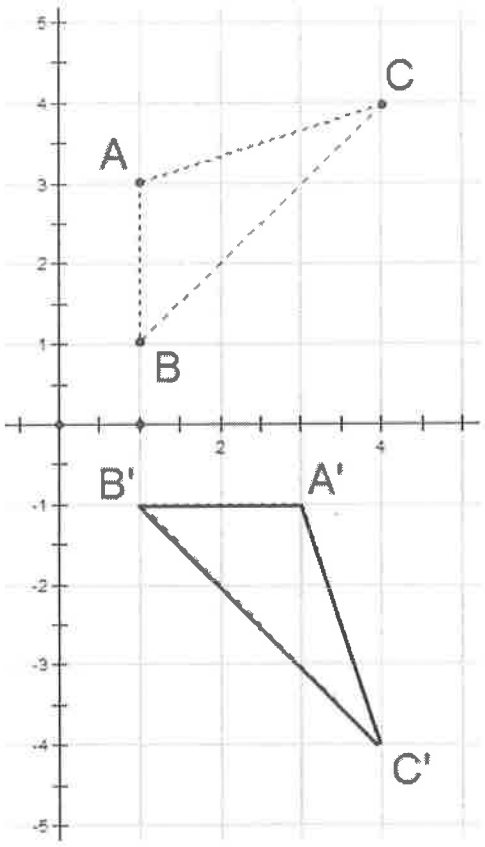


Transformation:

Horizontal translation (+4)

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

23.



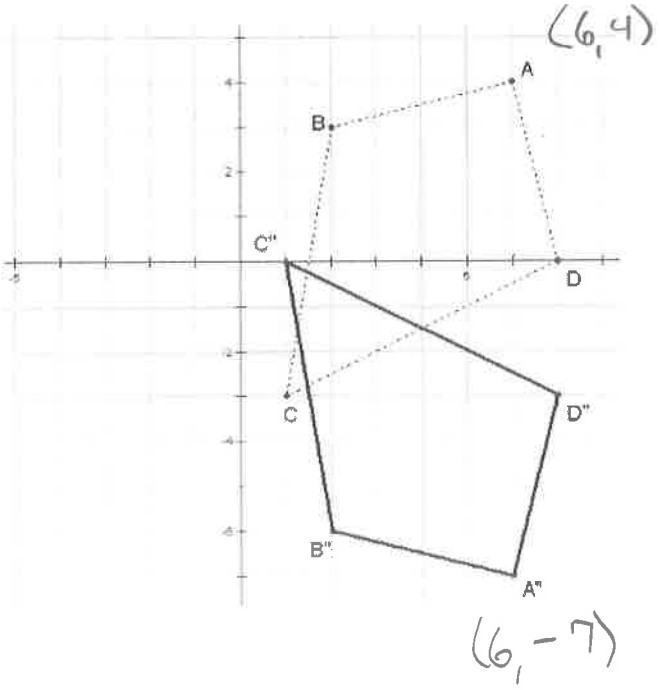
Transformation:

90° rotation clockwise

or 270° rotation CCW

$(x, y) \rightarrow$

24.



(6, 4)

(6, -7)

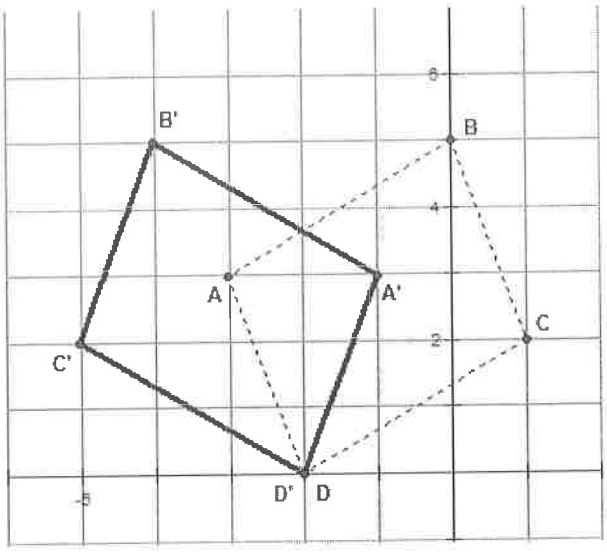
Transformation:

Reflect over y-axis

Vertical translation (-3)

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

25.

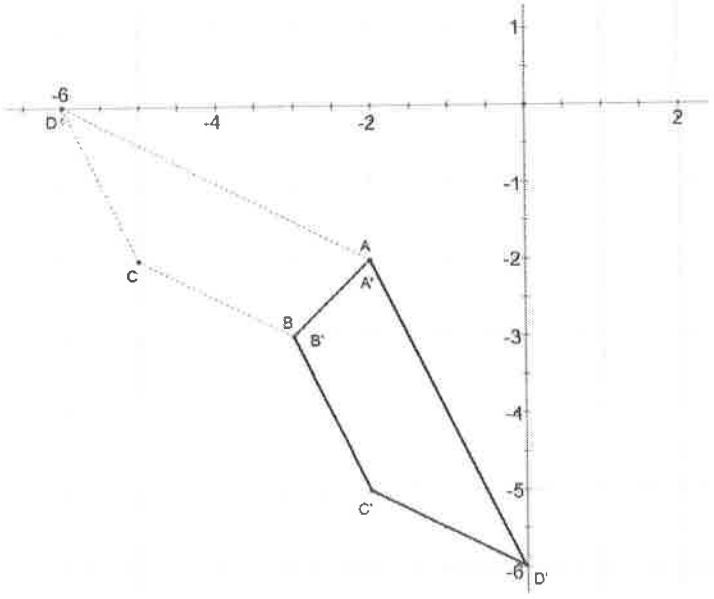


Transformation(s):

Reflect over $x = -2$.

$(x, y) \rightarrow$ No rule

26.

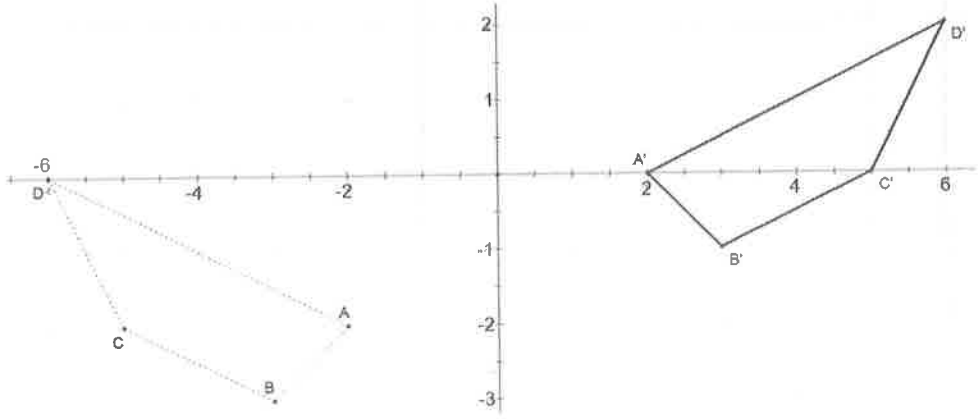


Transformation(s):

Reflect over $y = x$.

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

27.



Transformation(s):

Reflect over y-axis

Vertical translation (+2)

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