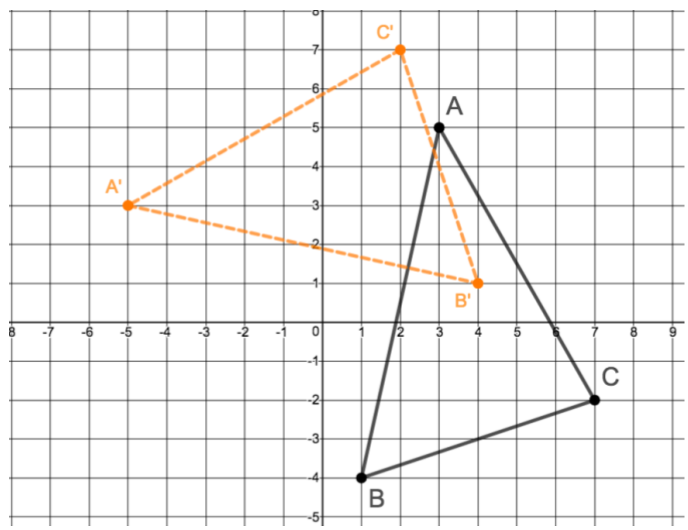
Go to page 2 for the SOLUTIONS to the Homework. Make sure you check your work.

For questions 1-7, use the following transformations with each question:

- 90 degree rotation
- 180 degree rotation
- 270 degree rotation

1. What is the image of A(-1,5)?
2. What is the image of A′?
3. What is the preimage of D′(15,-3)?
4. What is the image of B(2a, 3b)?
5. What is the image of F(x - 5, 2y - 8)?
6. What is the preimage of G(a, 4b)?
7. What is the preimage of C(3x - 12, -y - 2)?

Use the figure below to answer each question.



1. Write a rule that would map ΔABConto $\Delta A'B'C'$.

2. What transformation is represented? List another transformation that would yield the same result.

Answer Key

For questions 1-7, use the following transformations with each question:

- 90 degree rotation $(x, y) \rightarrow (-y, x)$
- 180 degree rotation $(x, y) \rightarrow (-x, -y)$
- 270 degree rotation $(x, y) \rightarrow (y, -x)$

1. What is the image of A(-1,5)?
   a. 90 degree rotation A’(-5, -1)

      $A(-1,5) \rightarrow A'(-5,-1)$

   b. 180 degree rotation A’(1, -5)

      $A(-1,5) \rightarrow A'(1,-5)$

   c. 270 degree rotation A’(5, 1)

      $A(-1,5) \rightarrow A'(5,1)$

2. What is the image of A′?
   a. 90 degree rotation A’’(1, -5)

      $A'(-5,-1) \rightarrow A''(1,-5)$

   b. 180 degree rotation A’’(-1, 5)

      $A'(1,-5) \rightarrow A''(-1,5)$

   c. 270 degree rotation A’’(1, -5)

      $A'(5,1) \rightarrow A''(1,-5)$

3. What is the preimage of D′(15,-3)?
   a. 90 degree rotation D(-3, -15)

      $(x,y) \rightarrow (-y,x)$ $D'(15,-3) \rightarrow D(-3,-15)$

   b. 180 degree rotation D(-15, 3)

      $(x,y) \rightarrow (-x,-y)$ $D'(15,-3) \rightarrow D(-15,3)$

   c. 270 degree rotation D(3, 15)

      $(x,y) \rightarrow (y,-x)$ $D'(15,-3) \rightarrow D(3,15)$

4. What is the image of B(2a, 3b)?
   a. 90 degree rotation B’(-3b, 2a)

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

      $B(2a,3b) \rightarrow B'(-3b,2a)$

   b. 180 degree rotation B’(-2a, -3b)

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

      $B(2a,3b) \rightarrow B'(-2a,-3b)$

c. 270 degree rotation $\boxed{B'(3b, -2a)}$ $(x,y) \to (y,-x)$

$B(2a,3b) \to B'(3b,-2a)$

5. What is the image of F(x - 5, 2y - 8)?

a. 90 degree rotation $\boxed{F'(-2y + 8, x -5)}$ $(x,y) \to (-y,x)$

$F(x-5,2y-8) \to F'(-(2y-8), x-5) \to F'(-2y+8, x-5)$

b. 180 degree rotation $\boxed{F'(-x + 5, -2y + 8)}$ $(x,y) \to (-x,-y)$

$F(x-5,2y-8) \to F'(-(x-5), -(2y-8)) \to F'(-x+5,-2y+8)$

c. 270 degree rotation $\boxed{F'(2y - 8, -x + 5)}$ $(x,y) \to (y,-x)$

$F(x-5,2y-8) \to F'(2y-8,-(x-5)) \to F'(2y-8,-x+5)$

6. What is the preimage of G'(a, 4b)?

a. 90 degree rotation $\boxed{G(4b, -a)}$

$G'(a,4b) \to G(4b,-a)$

b. 180 degree rotation $\boxed{G(-a, -4b)}$

$G'(a,4b) \to G(-a,-4b)$

c. 270 degree rotation $\boxed{G(-4b, a)}$

$G'(a,4b) \to G(-4b,a)$

7. What is the preimage of C'(3x - 12, -y - 2)?

a. 90 degree rotation $\boxed{C(-y - 2, -3x + 12)}$

$C'(3x-12,-y-2) \to C(-y-2,-(3x-12)) \to C(-y-2,-3x+12)$

b. 180 degree rotation $\boxed{C(-3x + 12, y + 2)}$

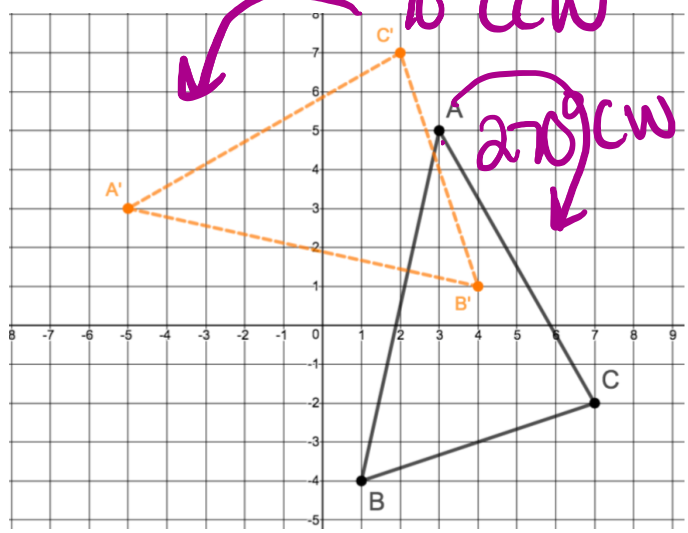
$C'(3x-12,-y-2) \to C(-(3x-12),-(-y-2)) \to C(-3x+12,y+2)$

c. 270 degree rotation $\boxed{C(y + 2, 3x - 12)}$

$C'(3x-12,-y-2) \to C(-(-y-2), 3x-12)$

$\to C(y+2, 3x-12)$

Use the figure below to answer each question.



A(3,5) → A'(-5,3)
B(1,-4) → B'(4,1)
C(7,-2) → C'(2,7)

1. Write a rule that would map ΔABC onto $\Delta A'B'C'$.

(x,y) → (-y,x) 90° rotation counterclockwise

T(x, y) -> (-y, x)

2. What transformation is represented? List another transformation that would yield the same result.

90 degree rotation or 270 degree clockwise rotation

270° clockwise is the same as 90° counterclockwise