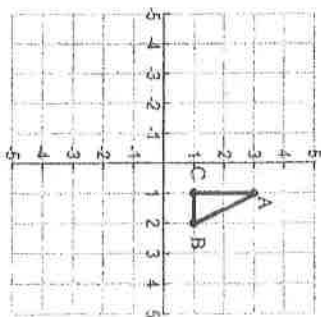


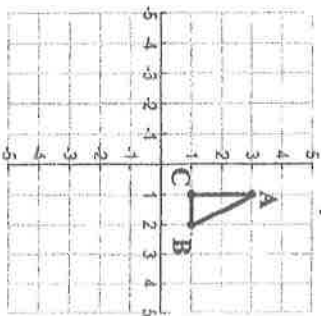
Use the coordinate graph below to answer the questions.



Rotate triangle ABC clockwise 90° about the origin. What are the new ordered pairs after the rotation? What is the relationship between the new and old vertices?

$\triangle ABC$ \longrightarrow $\triangle A'B'C'$
 $A(2, 3) \longrightarrow A'(3, -1)$
 $B(3, 2) \longrightarrow B'(1, -2)$
 $C(1, 1) \longrightarrow C'(-1, -1)$

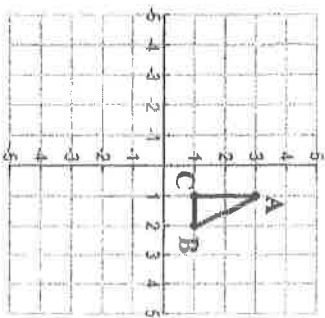
Take the original triangle ABC and now rotate it 90° counterclockwise about the origin. Compare the new and old vertices.



$\triangle ABC$ \longrightarrow $\triangle A'B'C'$
 $A(2, 3) \longrightarrow A'(-3, 1)$
 $B(3, 2) \longrightarrow B'(-1, 2)$
 $C(1, 1) \longrightarrow C'(-1, 1)$

Once again go back to the original triangle ABC. This time rotate it 180° clockwise about the origin. Compare the new and old vertices.

$\triangle ABC$ \longrightarrow $\triangle A'B'C'$
 $A(2, 3) \longrightarrow A'(1, 3)$
 $B(3, 2) \longrightarrow B'(1, 2)$
 $C(1, 1) \longrightarrow C'(1, 1)$



Find the coordinates of the vertices of each figure after the given transformation.

7) rotation 180° about the origin
 $Z(-1, -5), K(-1, 0), C(1, 1), N(3, -2)$

$Z'(1, 5) K'(1, 0) C'(-1, -1) N'(-3, 2)$

9) rotation 90° clockwise about the origin
 $S(1, -4), W(1, 0), J(3, -4)$

$S'(-4, -1) W'(0, -1) J'(-4, -3)$

Write a rule to describe each transformation.

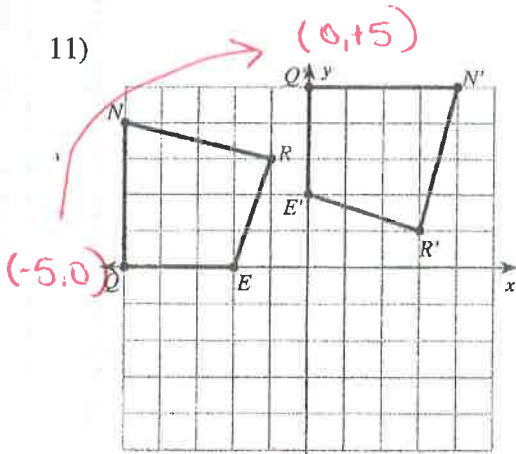
8) rotation 180° about the origin
 $L(1, 3), Z(5, 5), F(4, 2)$

$L'(-1, -3) Z'(-5, -5) F'(-4, -2)$

10) rotation 180° about the origin
 $V(-5, -3), A(-3, 1), G(0, -3)$

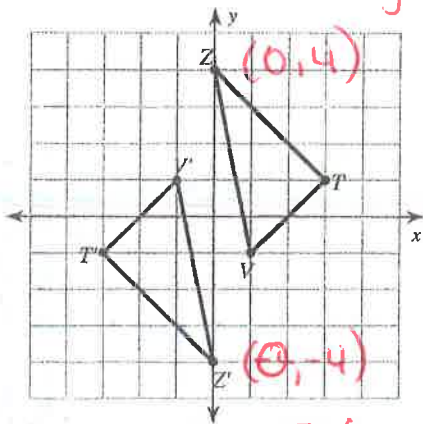
$V'(5, 3) A'(3, -1) G'(0, 3)$

11)



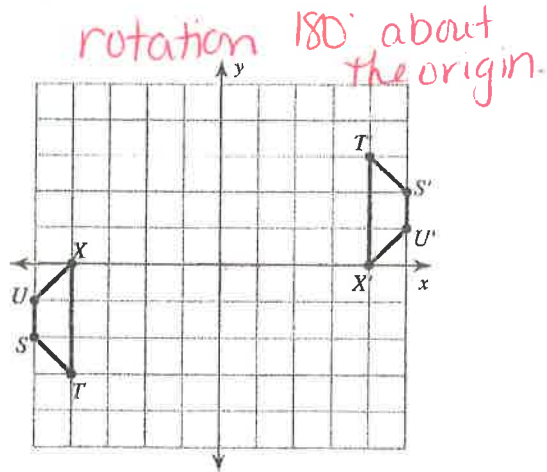
rotation 90° clockwise about the origin

13)

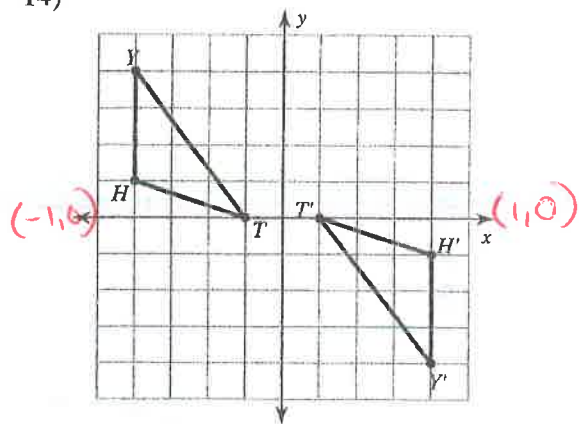


rotation 180° about the origin

12)



14)



rotation 180° about the origin