1.5 Rotations about the Origin **Geometry**

Directions: Write the rule of the transformation.

1) A triangle ABC is rotated 360 degrees CW.

2) A line segment DE is rotated 180 degrees.

3) A square MNOP is rotated 270 degrees CW.

4) A line segment XY is rotated 90 degrees CW.

Directions: Describe the transformation. (This is a mixed review).

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

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

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

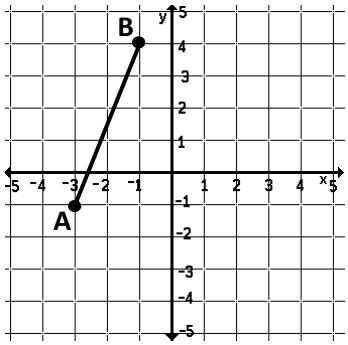
8) $(x, y) \rightarrow '(x + 2, y)$

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

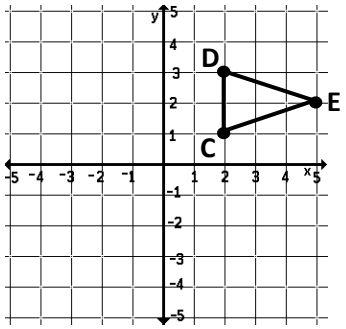
*10) $(x, y) \rightarrow '' (-y, x + 1)$

Directions: Complete the transformation of the new image. If the rule was provide, describe the transformation. If the transformation was described, write the rule.

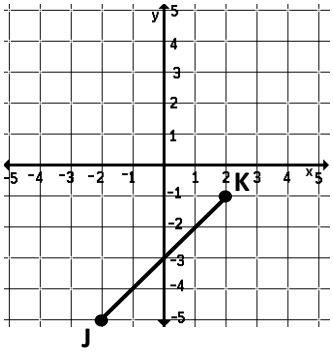
11) AB$(x, y) \rightarrow A'B'(y, -x)$



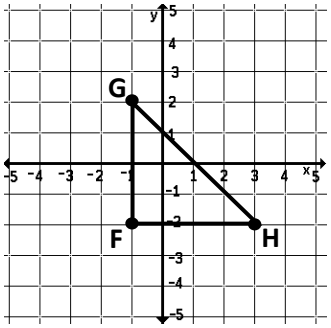
12) CDE $(x, y) \rightarrow C'D'E'$ $(-y , x)$



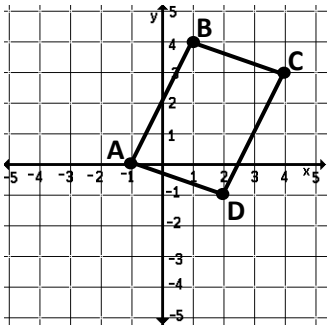
13) JK$(x, y) \rightarrow J'K'(-x, -y)$



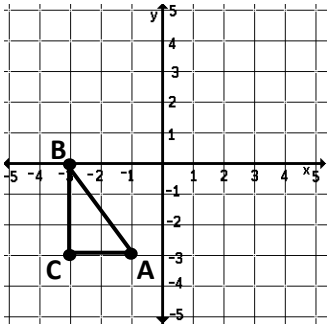
14) Rotate FGH by 270° CCW.



15) Rotate ABCD by 90° CCW.



16) Rotate ABC 180°



Directions: Find the missing point using the given information.

17) A(8, 4)
Rule: (x, y) → ‘(–x , –y)
Find A’.

18) B’(–6, –1)
Description: Rotation of 270^{o} CW.
Find B.

19) C’(0, 4)
Rule: (x, y) → ‘(y, –x)
Find C.

20) Pre-Image: (–2, 6)
Description: Rotation of 90^{o}CCW.
Find the image coordinate.

21) Image: (5.4, 11.2)
Description: Rotation of 270^{o}CCW.
Find the pre-image coordinate.

22) Pre-Image $\left(-\frac{1}{3}, -4\frac{5}{8}\right)$
Rule: (x, y) → ‘$(-y, x)$
Find the image coordinate.

Directions: Solve each problem.

23) A wheel has its center located at the origin of a graph. A nail is found on the bicycle wheel in a location of W(–25, 3). After the tire is rotated 180^{o}CW, at what coordinate is this nail?

24) (–h, k) is rotated 90^{o}CCW. What is the coordinate of its image?

25) The long hand of this clock is rotated 270^{o}CW. What is the time after this rotation?

26) After a rotation about the origin, M(4, 12) has an image of M’(12, –4). What is R’ if R is located at (–1, 3) and follows this same rotation?