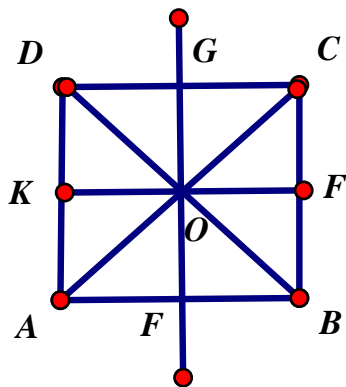


## Rotations

$$\begin{aligned} \mathbf{R}_{(0,0) 90^\circ} (x, y) &\longrightarrow (-y, x) \\ \mathbf{R}_{(0,0) 180^\circ} (x, y) &\longrightarrow (-x, -y) \\ \mathbf{R}_{(0,0) 270^\circ} (x, y) &\longrightarrow (y, -x) \end{aligned}$$

1.  $R_{(0,0) 90^\circ} (3, 5)$
2.  $R_{(0,0) 90^\circ} (4, 2)$
3.  $R_{(0,0) 90^\circ} (-2, 4)$
4.  $R_{(0,0) 180^\circ} (1, 5)$
5.  $R_{(0,0) 180^\circ} (4, -2)$
6.  $R_{(0,0) 180^\circ} (-3, 5)$
7.  $R_{(0,0) 270^\circ} (3, 1)$
8.  $R_{(0,0) 270^\circ} (-4, 2)$
9.  $R_{(0,0) -90^\circ} (3, 1)$
10.  $R_{(0,0) -90^\circ} (-4, 2)$

- 11 – 16 Points E, F, G and K are midpoints of the sides of the rectangle ABCD. Classify each statement as true or false.



11.  $R_{O 90^\circ} E \longrightarrow F$
12.  $R_{O 180^\circ} F \longrightarrow K$
13.  $R_{O 270^\circ} C \longrightarrow F$
14.  $R_{O 135^\circ} G \longrightarrow B$
15.  $R_{O -90^\circ} A \longrightarrow D$
16.  $R_{O 45^\circ} G \longrightarrow D$