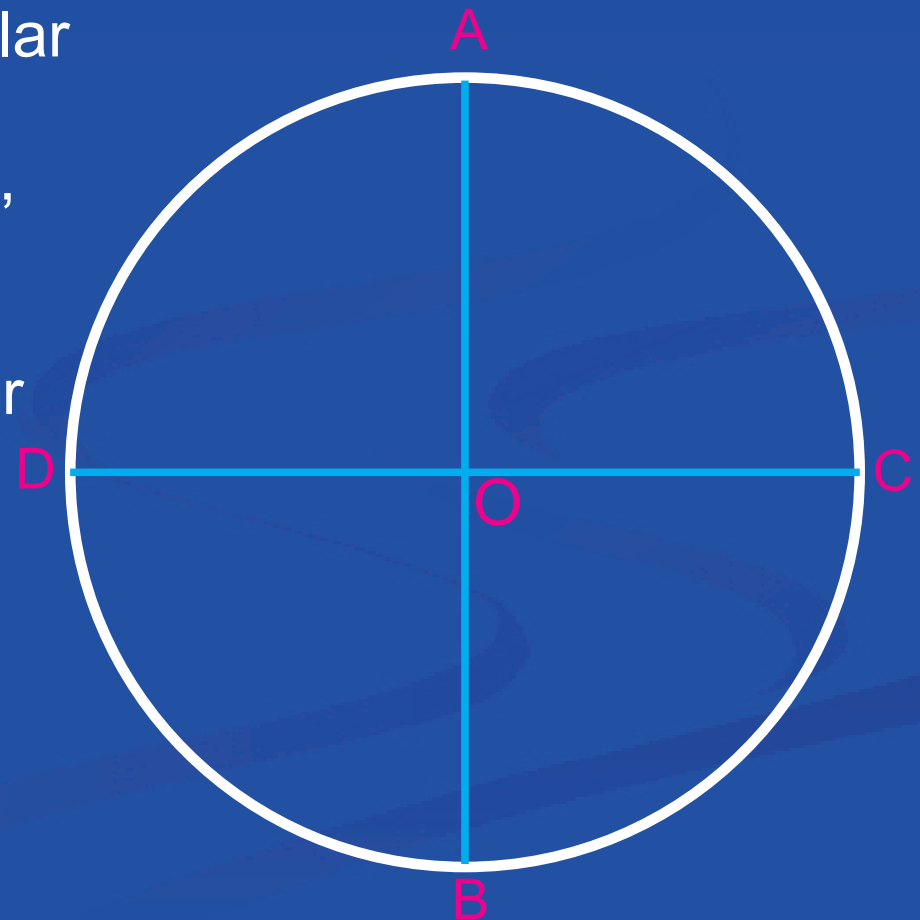


# HOW TO CONSTRUCT REGULAR POLYGONS INSCRIBED WITHIN A CIRCUMFERENCE

- You need to find as many points as sides (or vertices) the polygon has, along a circumference's perimeter, so that these are all equidistant.
- Draw a circumference and its perpendicular diameters. These rects intersect at point **O** and cut at the circumference at points **A**, **B**, **C**, **D**.

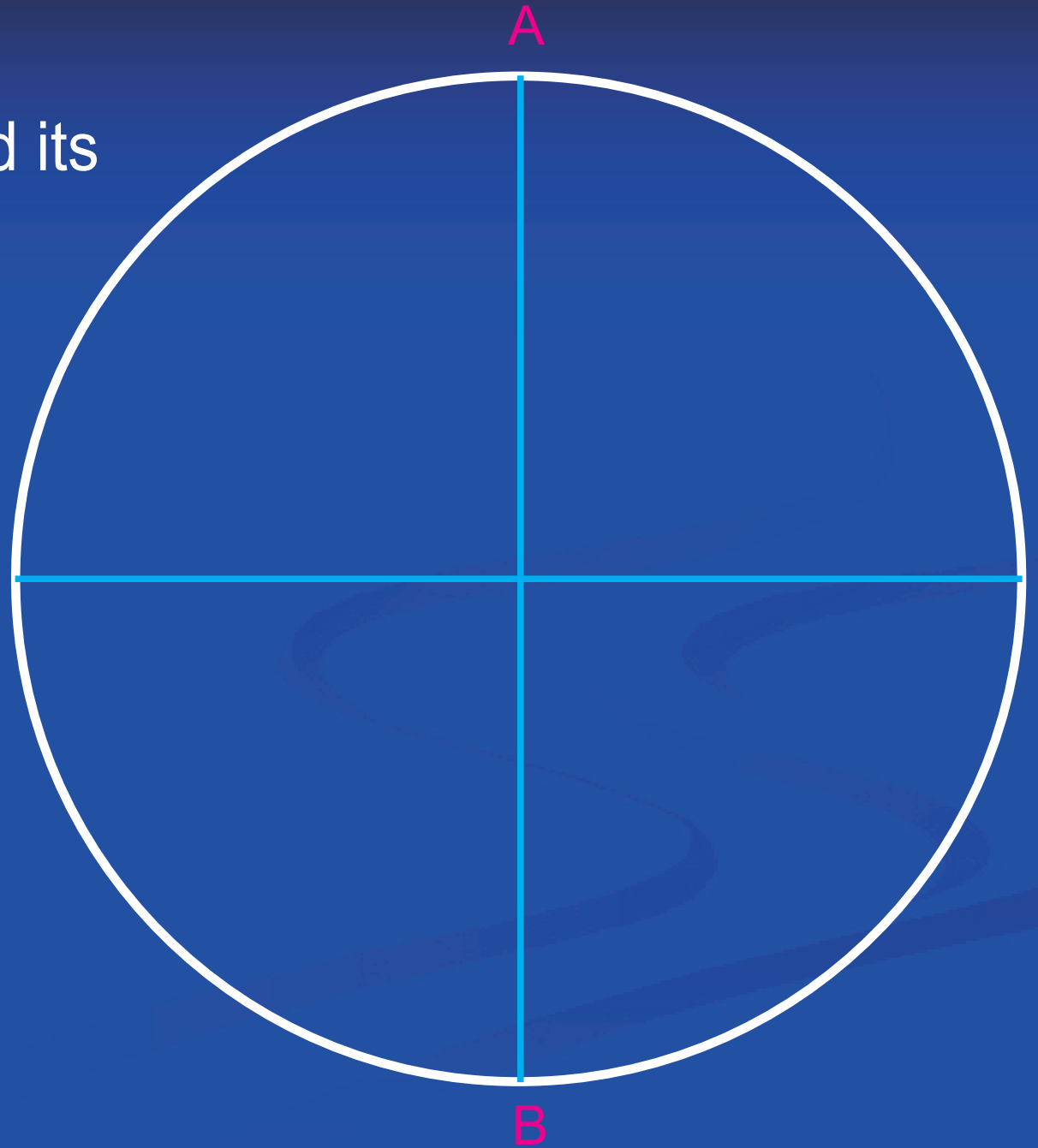
This is the first step to find all the points that we need to construct the regular polygon for which we are looking .

- Each of the points of any polygon inscribed in a circumference, HAS TO BE located on the circumference's perimeter.

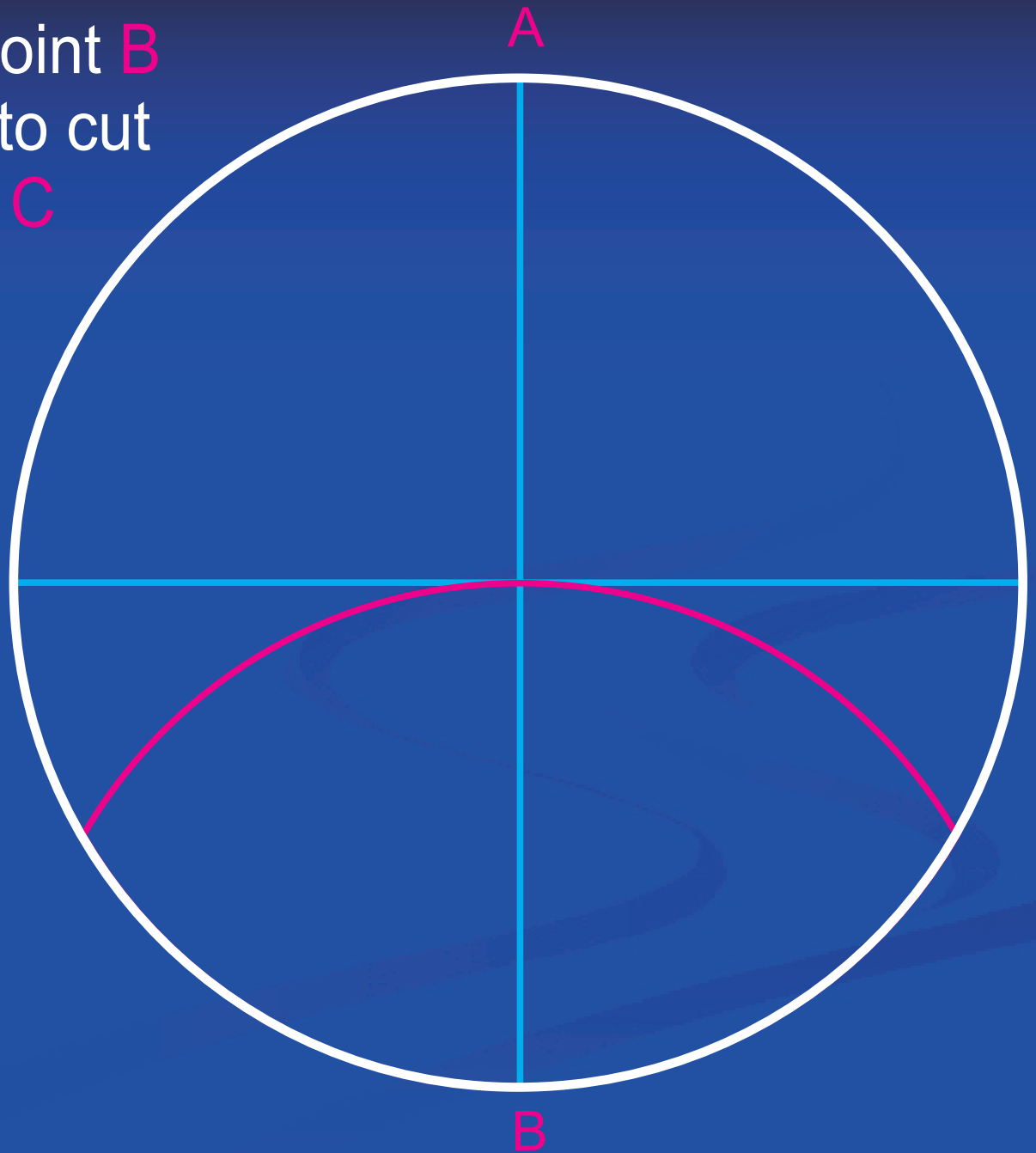


# TRIANGLE

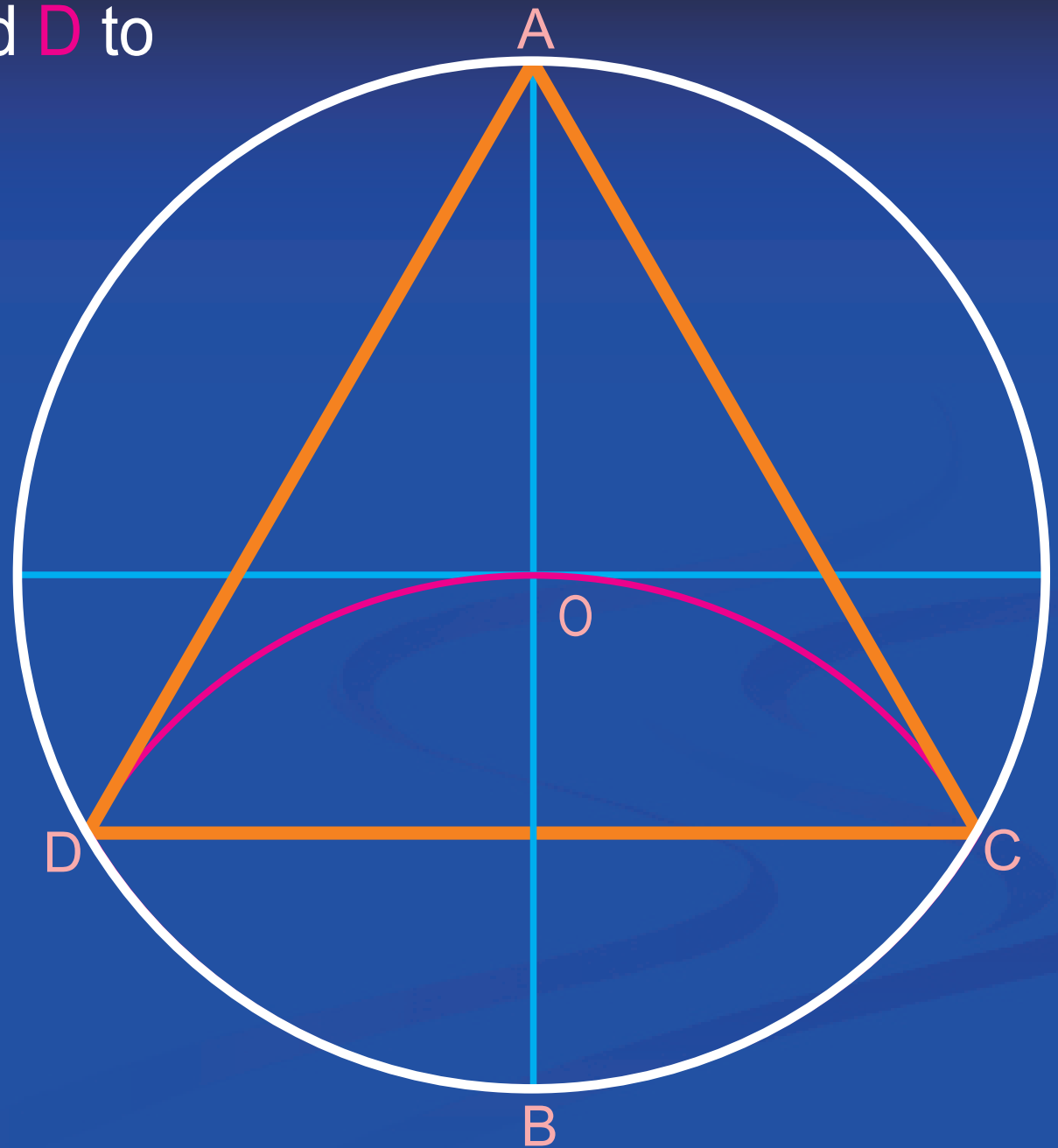
- Draw a circumference and its perpendicular diameters to obtain points **A** and **B**



- Open the compass from point **B** to point **O** and draw an arc to cut the circumference at points **C** and **D**



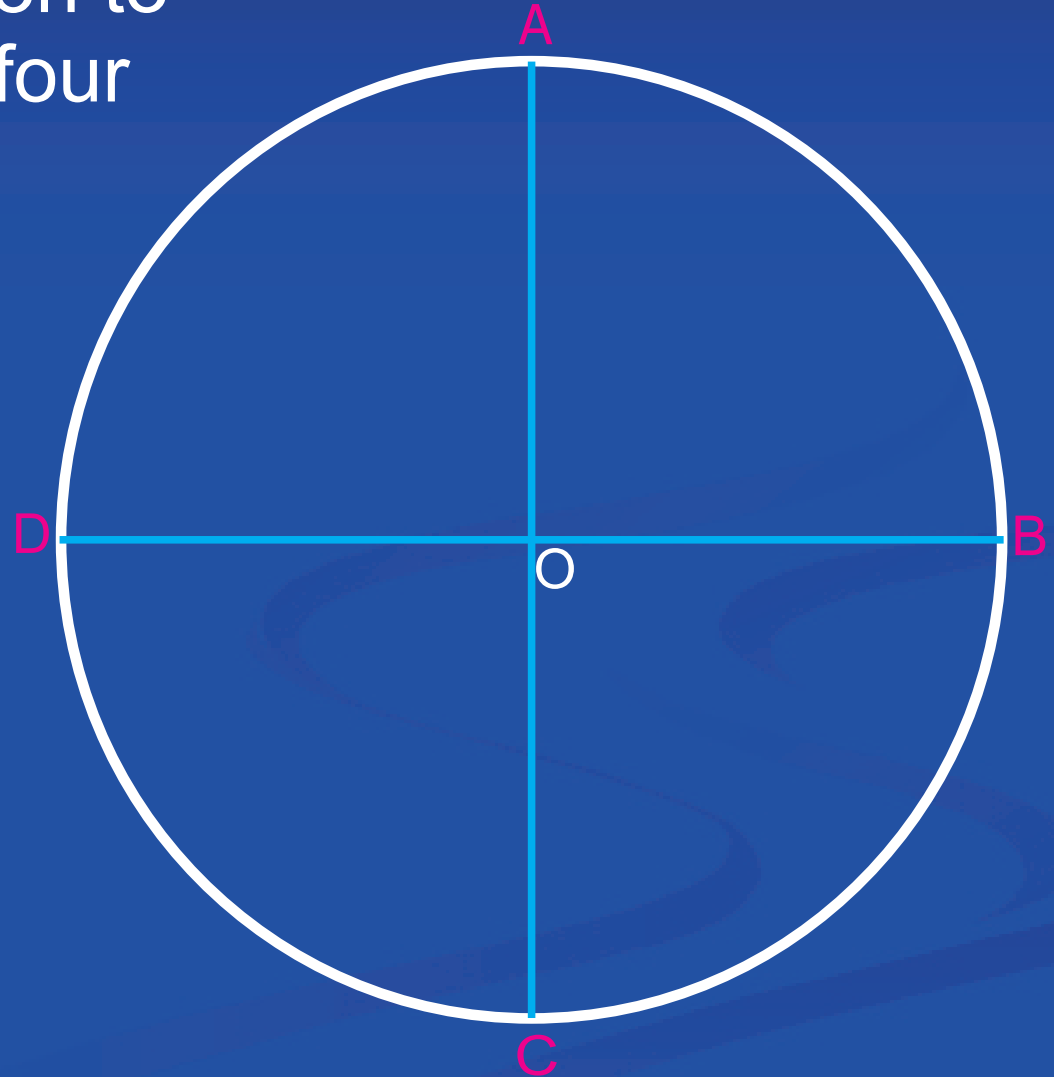
- Connect points **A**, **C** and **D** to obtain the regular triangle



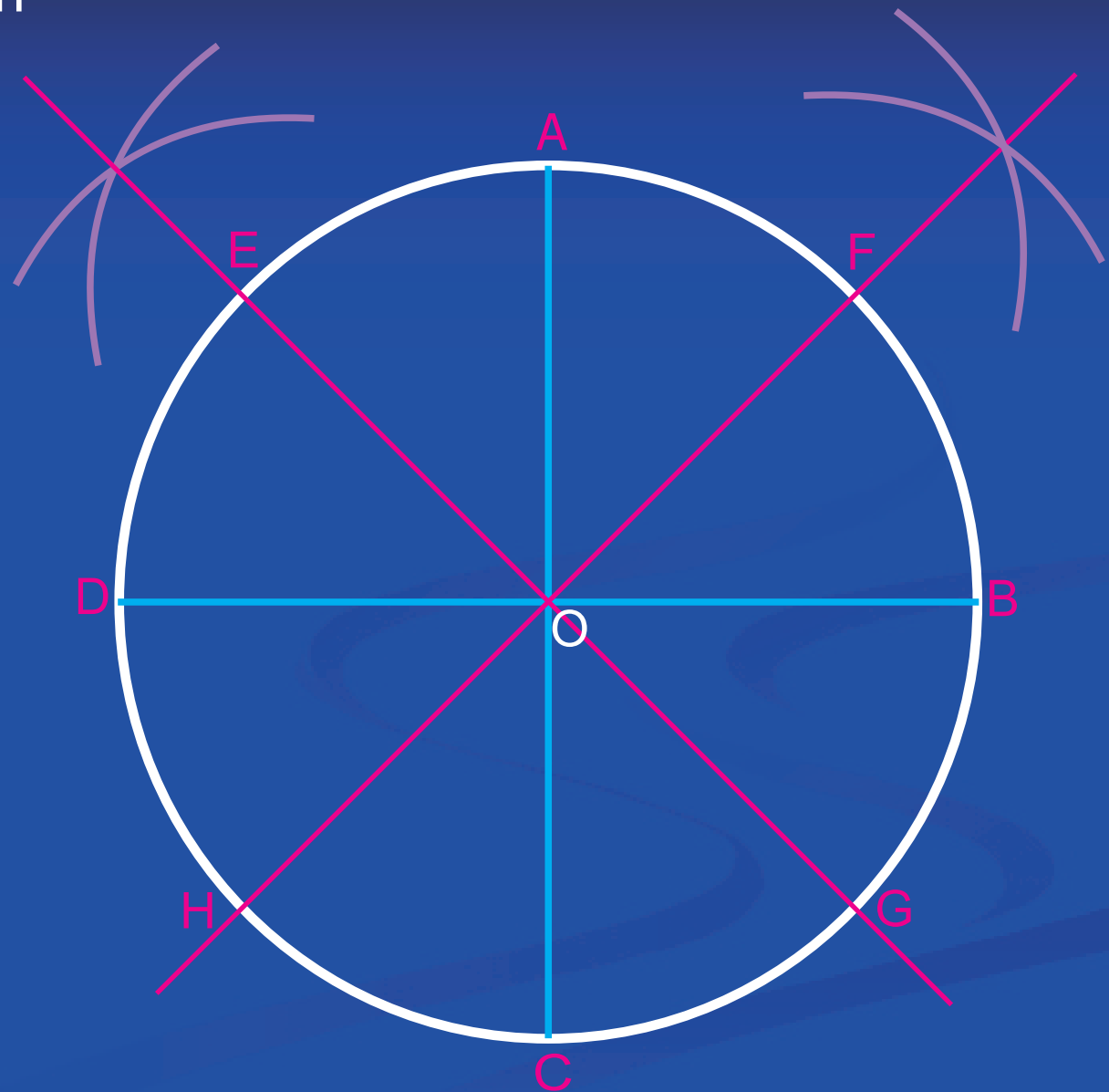


# SQUARE

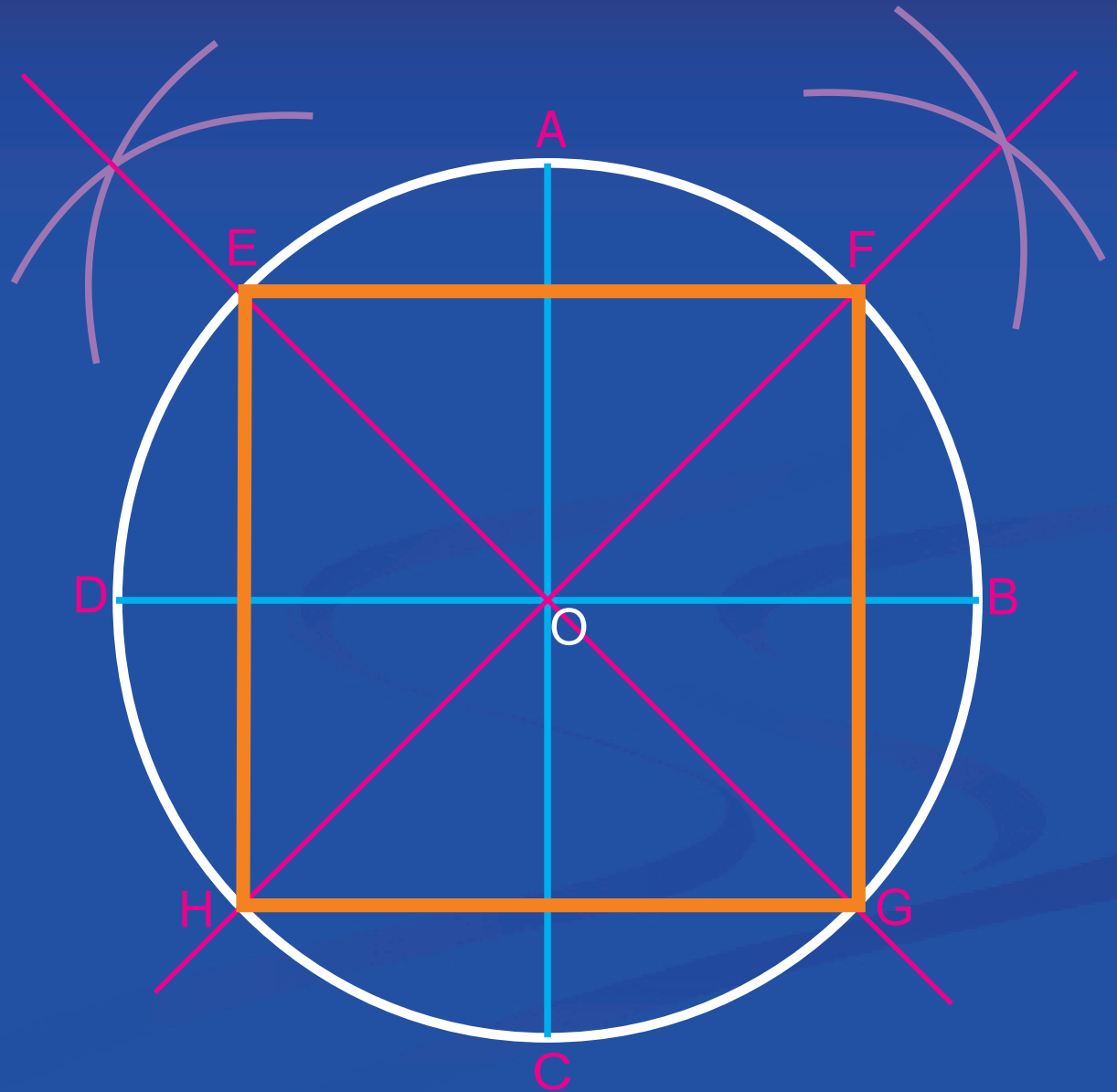
- From the first steps common to all regular polygons we get four right angles .



- Find the angle bisector of each one. Those rects intersect the circumference at points **E**, **F**, **G** and **H**.....and they are the four vertices of the square.

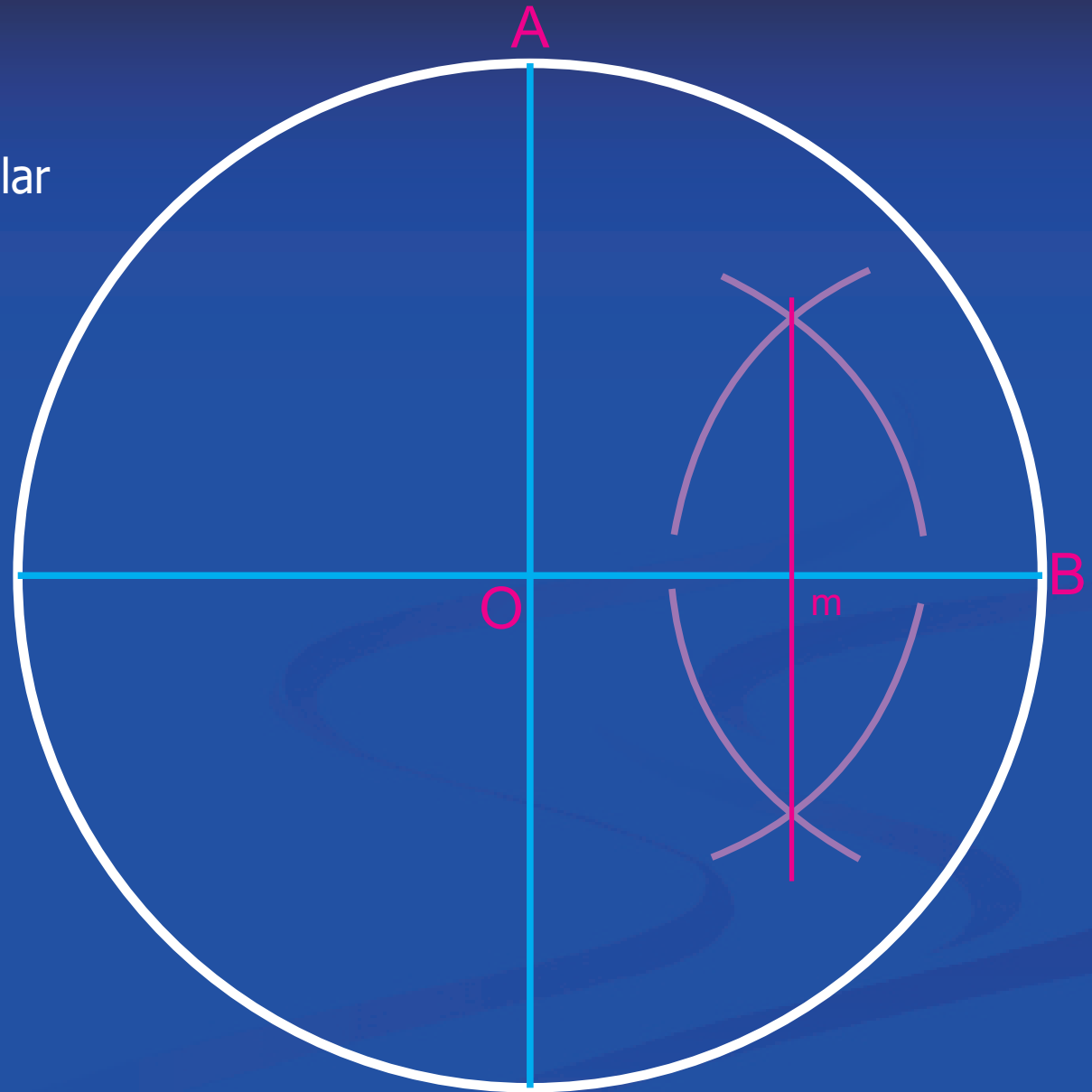


- Connect those points and we get the four sides of the square

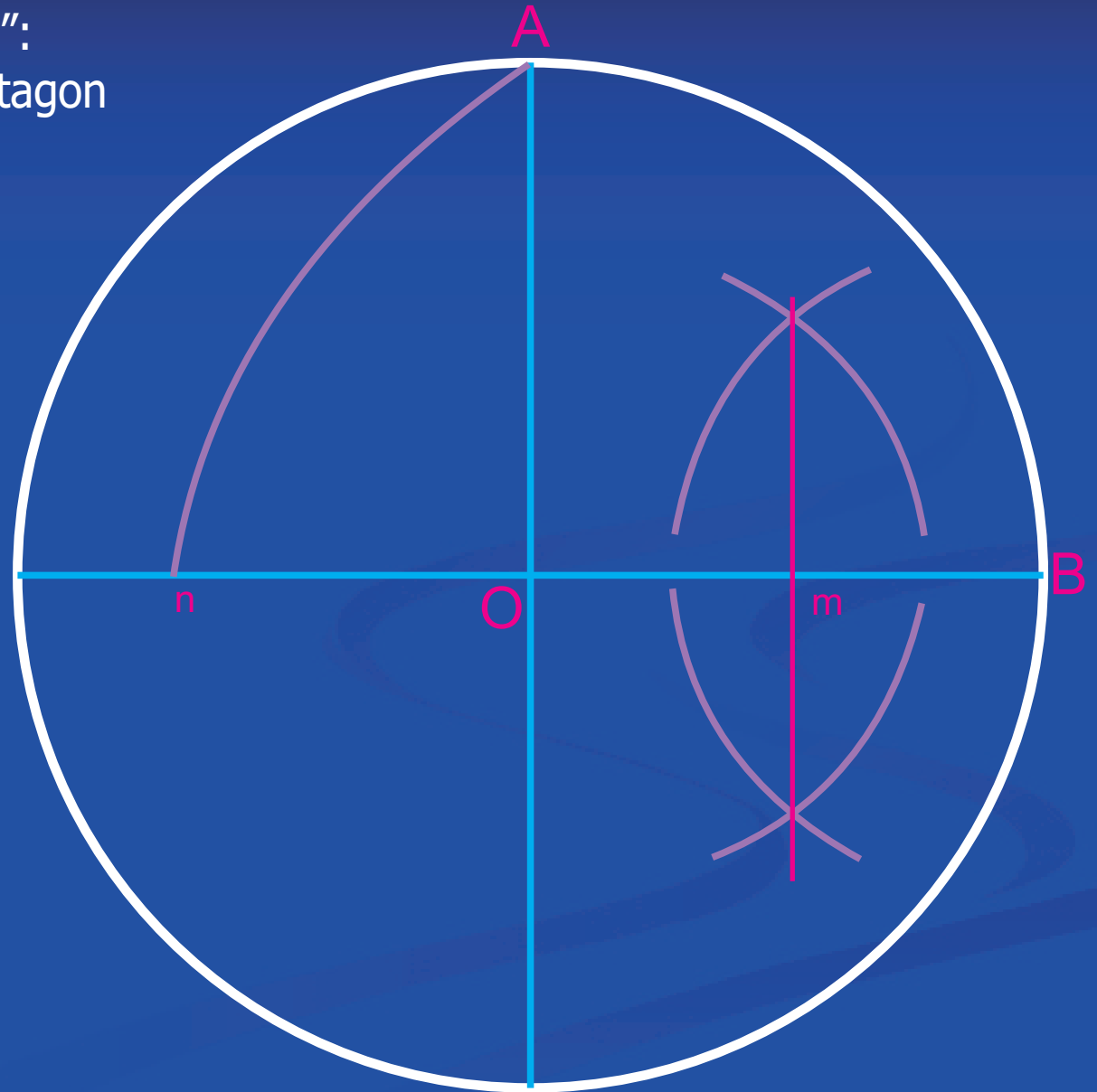


# PENTAGON

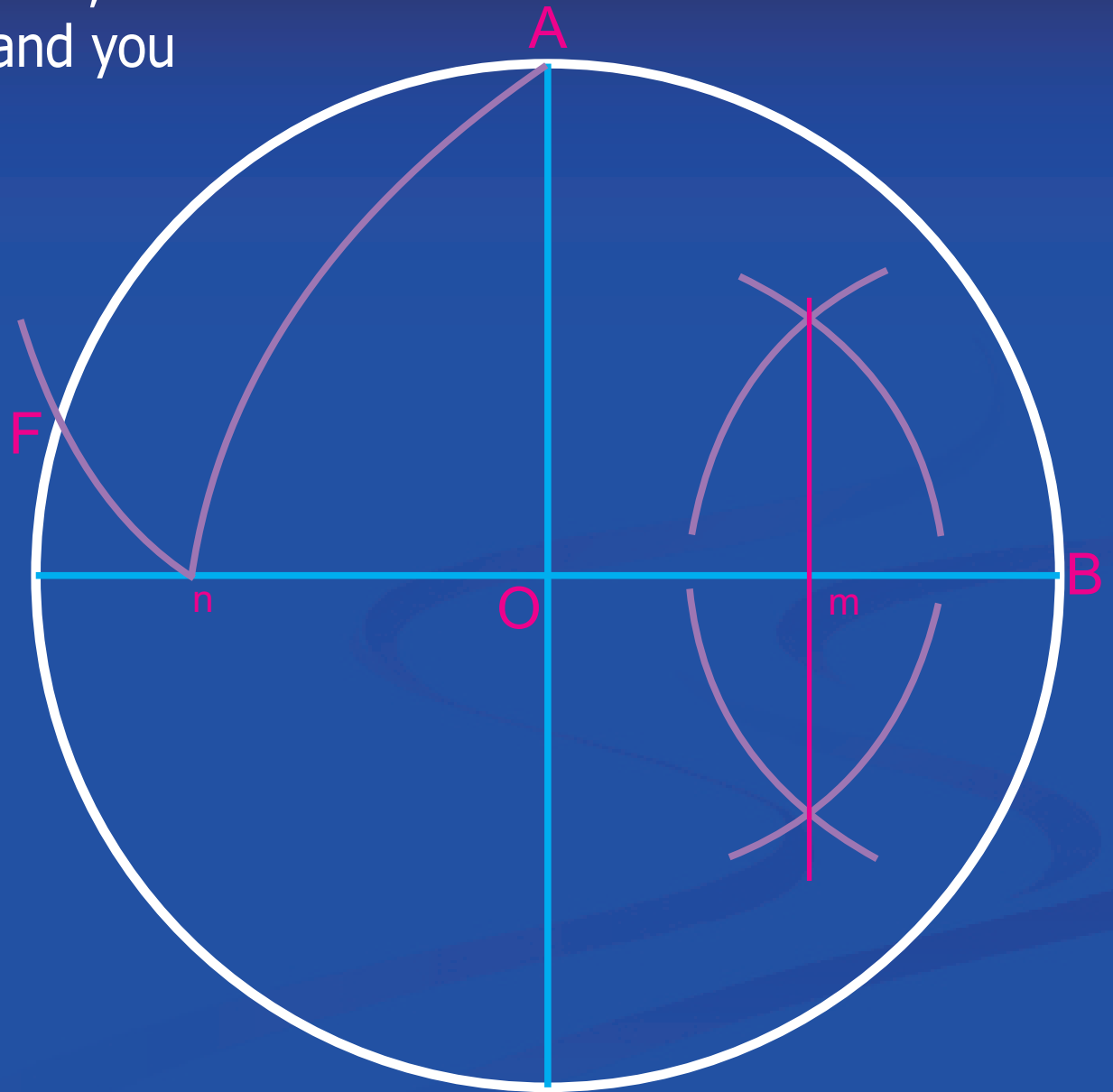
- Draw a circumference and its perpendicular diameters to obtain points **A** and **B**
- Find the segment bisector of segment **BO**, obtaining point "**m**"



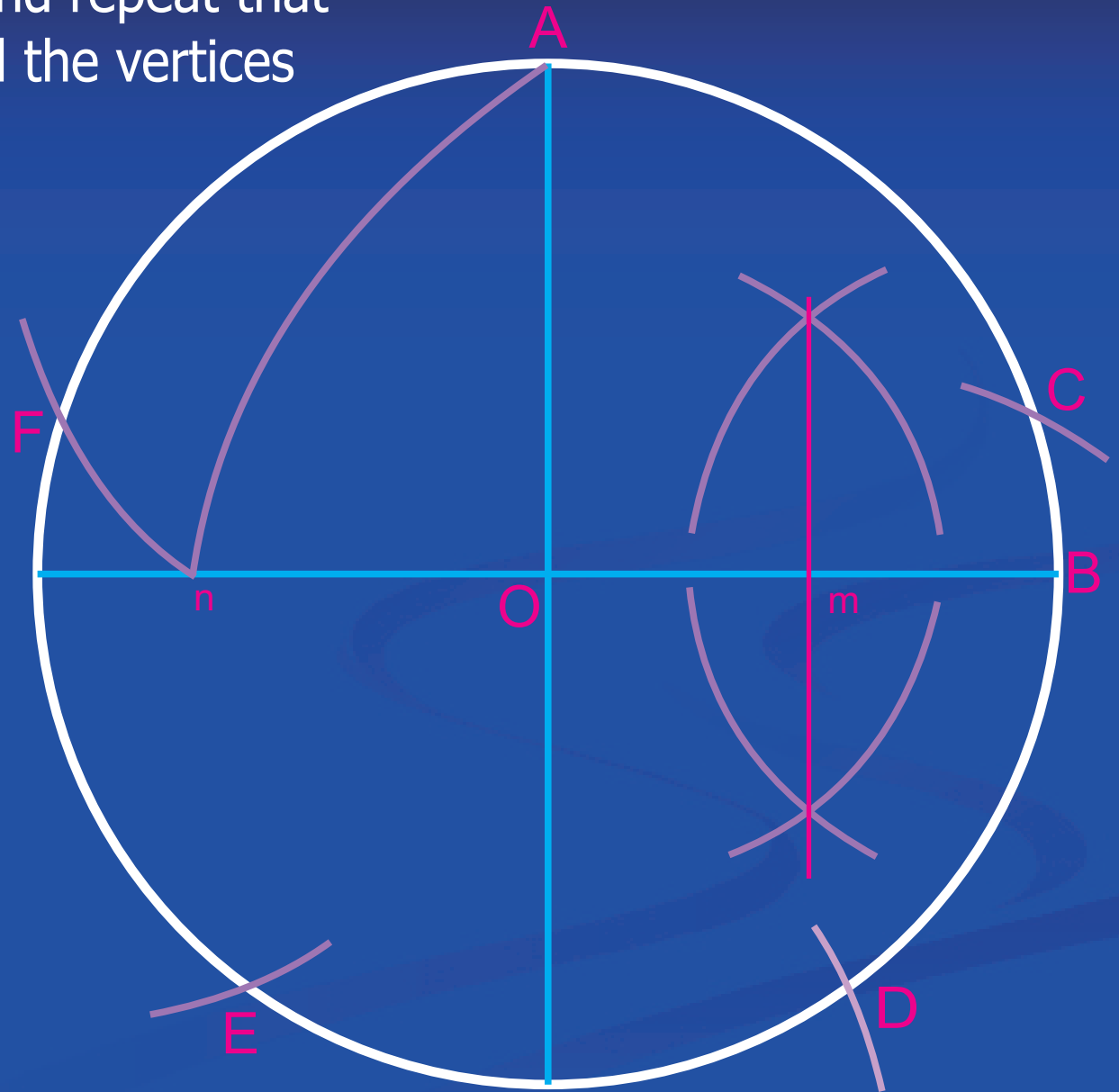
- Open the compass from "m" to point A and draw an arc that will intersect in "n":  
the distance A-n is one side of the pentagon



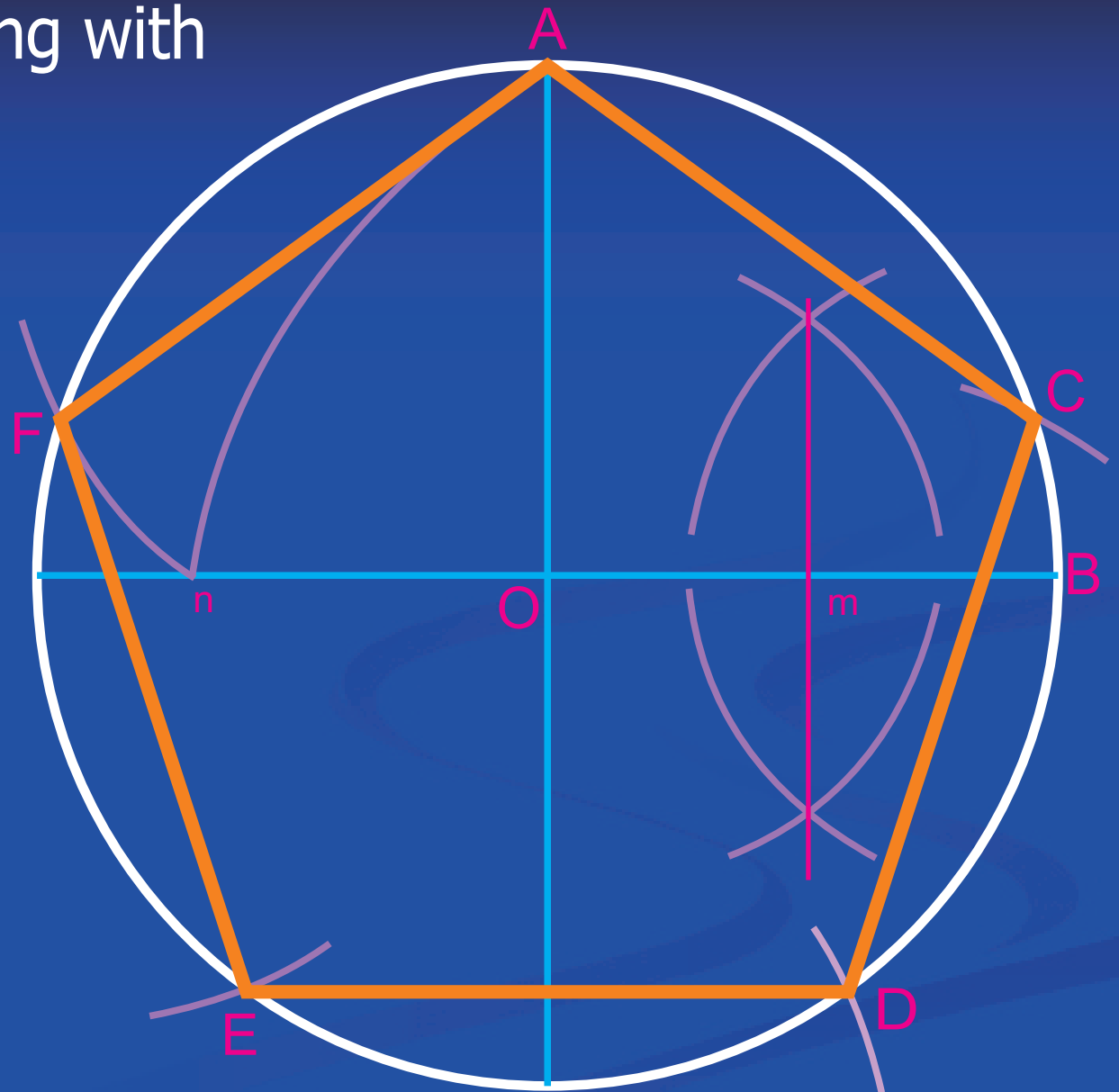
- Opening the compass from **A** to **n**, take that distance to the perimeter, and you obtain point **F**



- Place the compass at point **F** and repeat that distance four more times to find the vertices of the pentagon: **F, E, D, C, A**



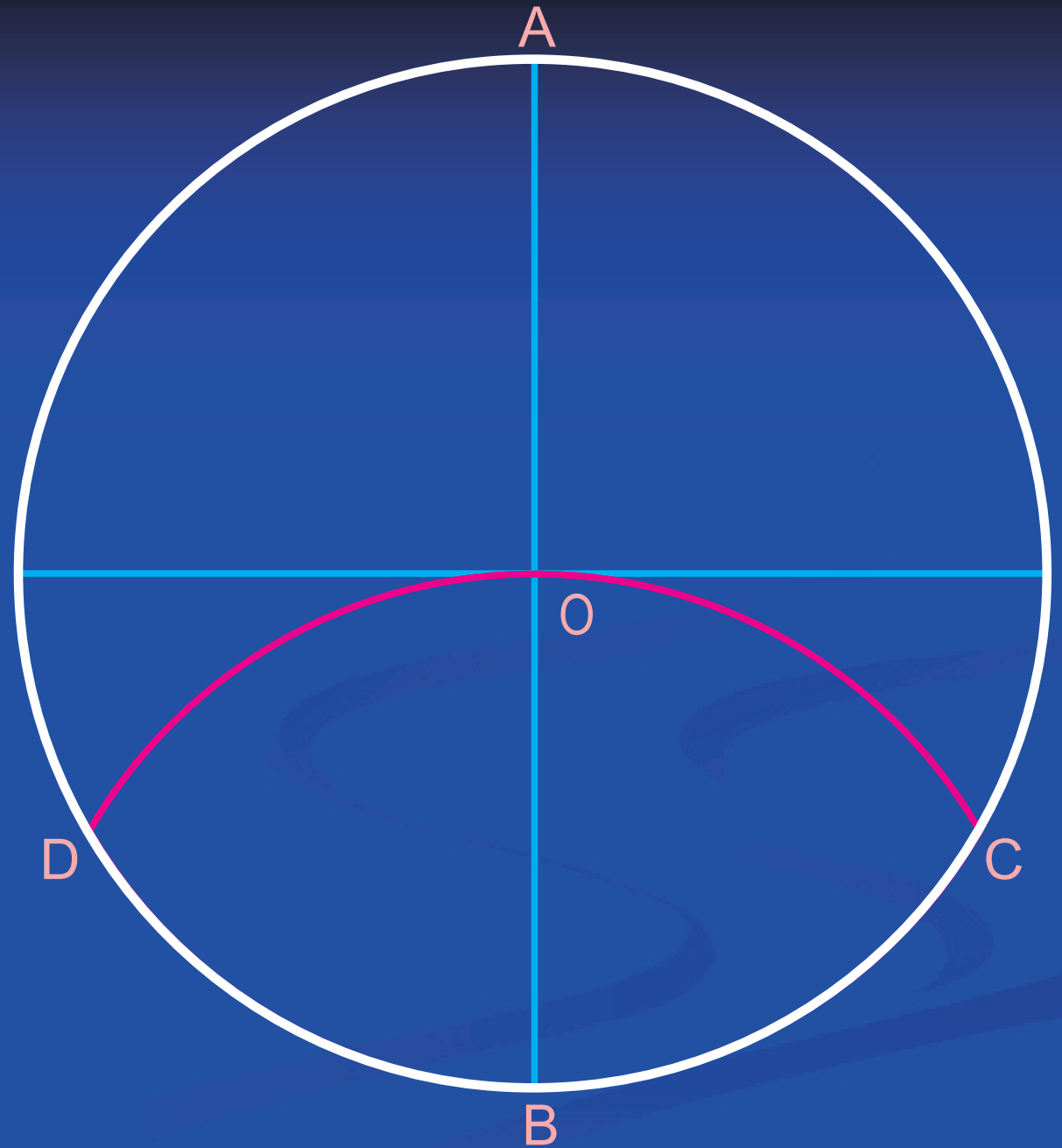
- Connect those points along with **A** to obtain the pentagon



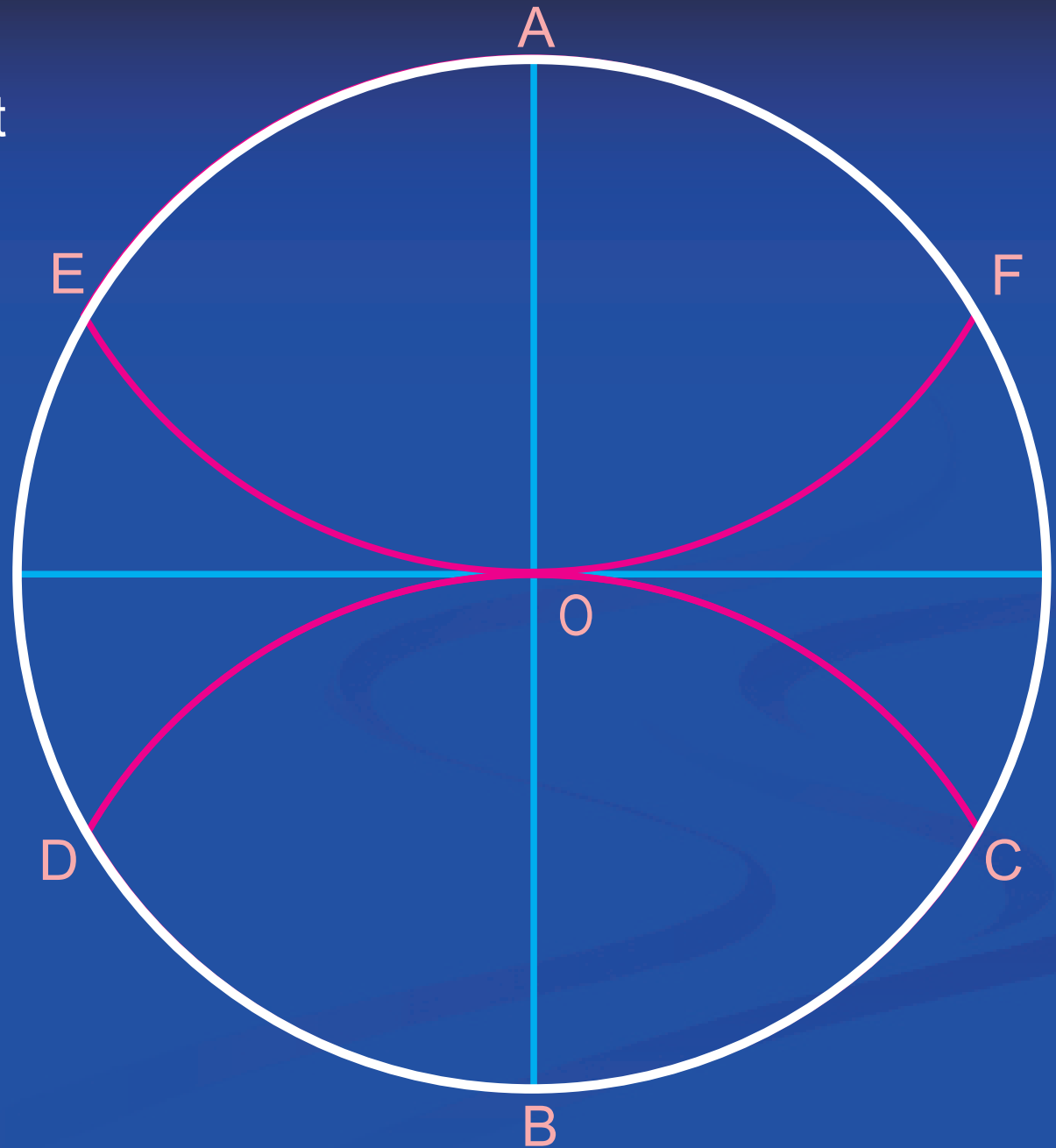


# HEXAGON

- Draw a circumference and its perpendicular diameters to obtain points **A** and **B**
- Open the compass from point **B** to point **O** and draw an arc to cut the circumference at points **C** and **D**

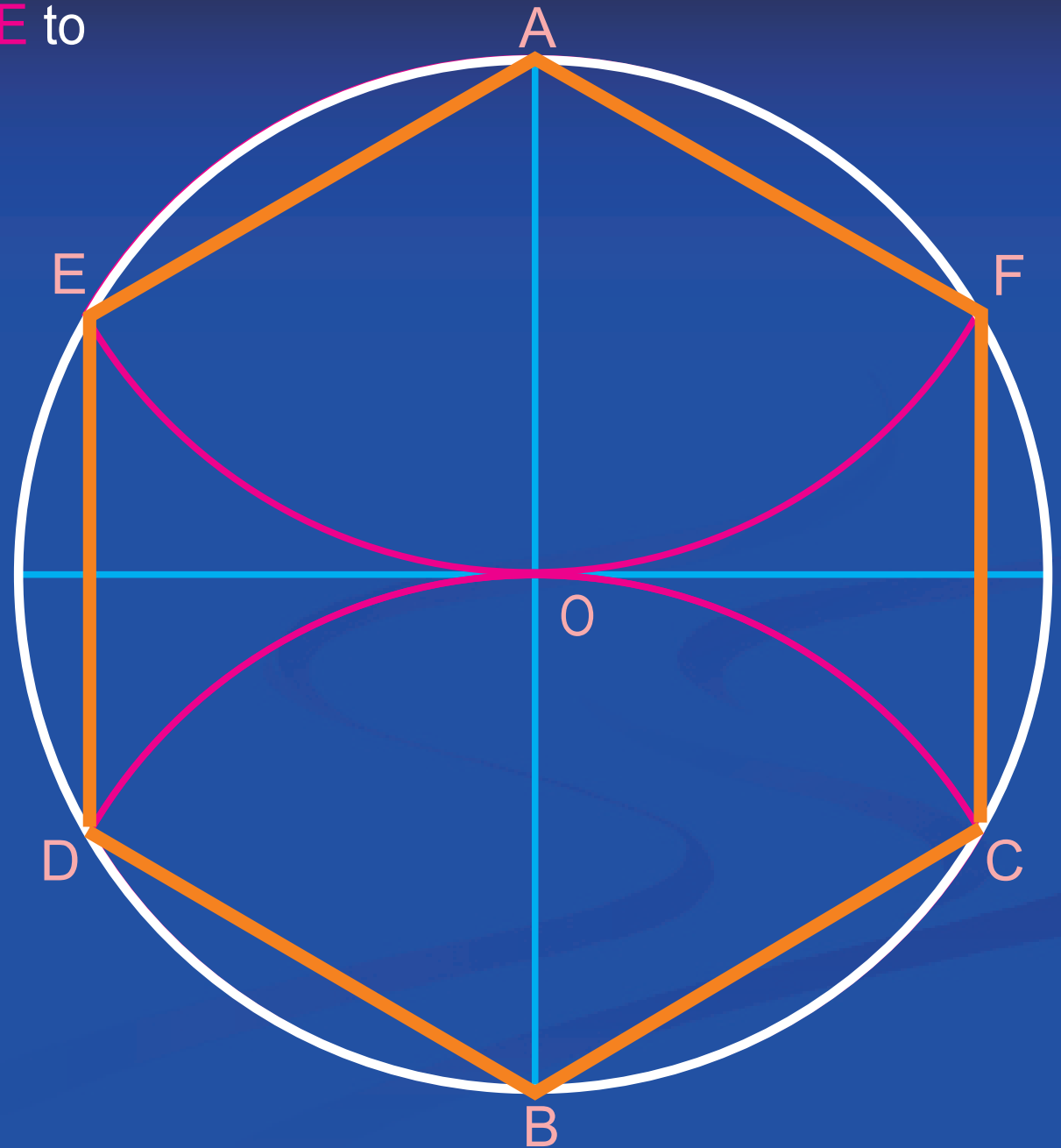


- Do the same from point A and the arc cuts the circumference at points E and F



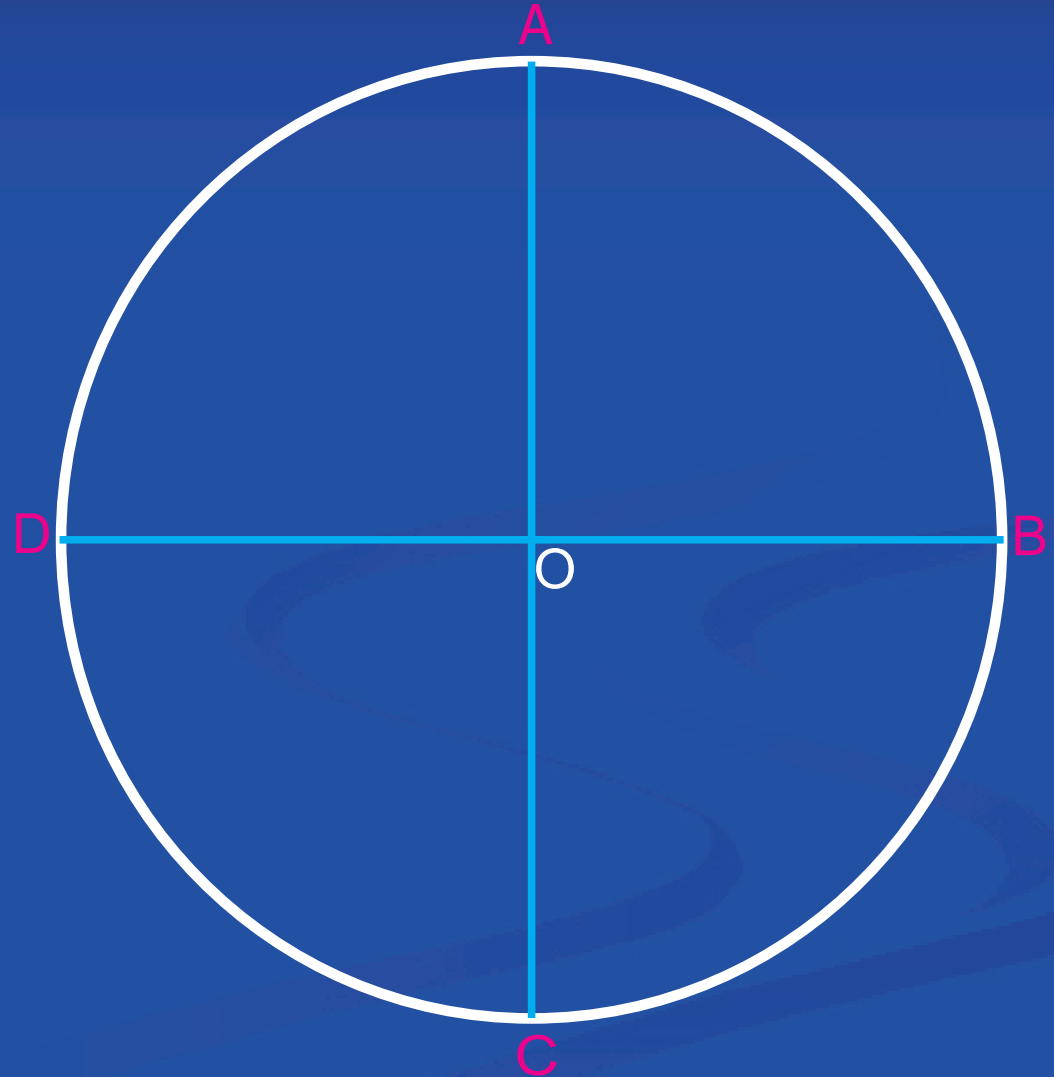
- Connect points **A**, **F**, **C**, **B**, **D** and **E** to obtain the regular hexagon.

-Also, note that the side of a hexagon is equal to the radius of the circumference in which it is inscribed.

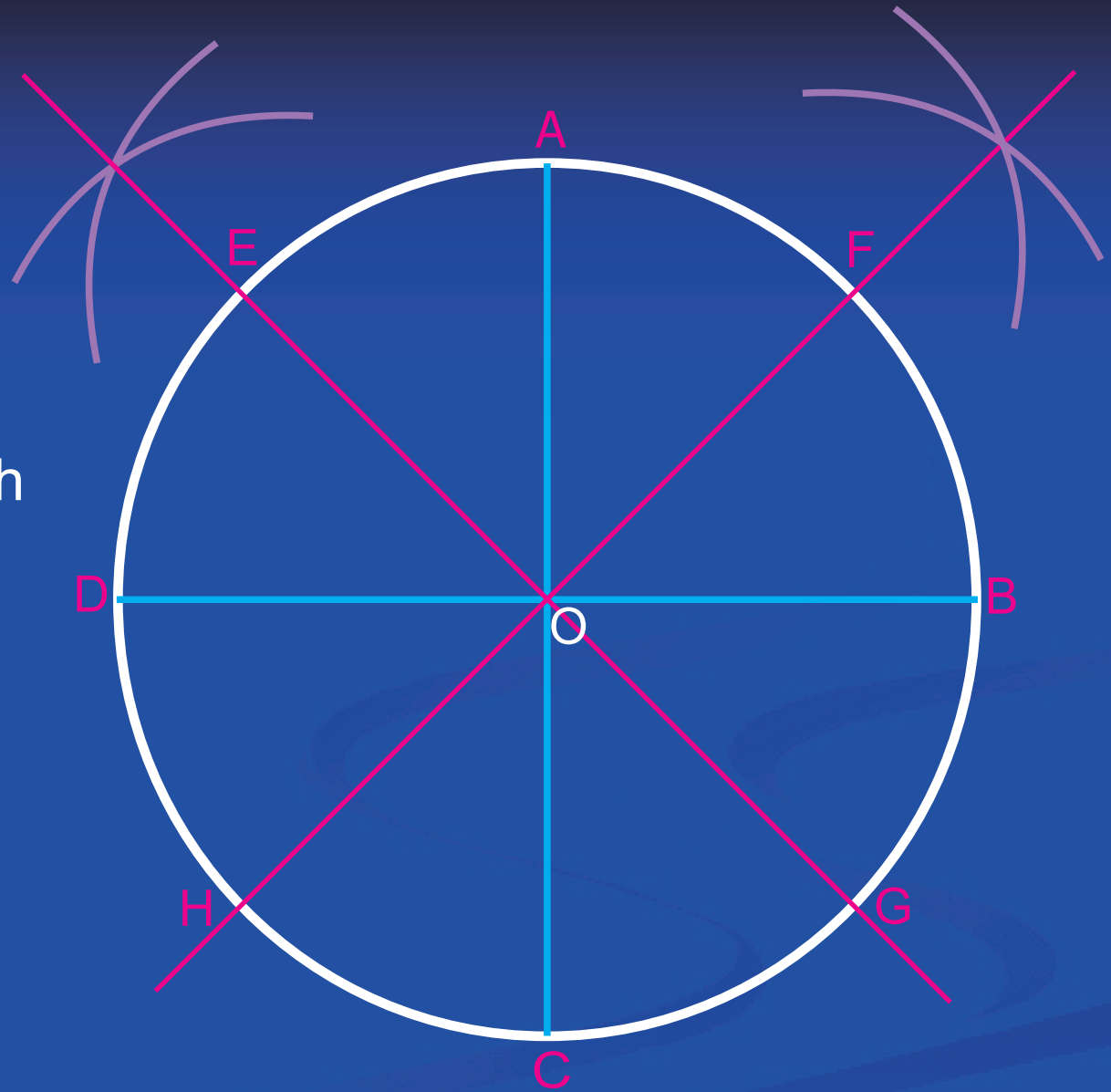


# OCTAGON

- After the first steps common to all regular polygons we get four right angles and points **A**, **B**, **C**, **D**



- Find the angle bisector of each angle. Those bisectors intersect the circumference at points **E**, **F**, **G** and **H**.



- Join all the points we found and we get the eight sides of the octagon

