

# The 70 Degree Angle Theorem

Nilotpal Mazumder

A student of Kendriya Vidyalaya Duliajan, Duliajan, Assam, India

**Abstract:-** This theory is based on geometry. In the classical theory of geometry one can make angle of 15, 30, 45, 60... up to 360 degree. Such that the difference between the consecutive terms is 15 degree. But now by using this theorem we can make more discrete angles by making 70 degree. Such as 35, 65, 95, etc. by using compass. There is an equation, by using this we can do it.

measurement," geometry is one of the oldest sciences. It was first formally organized by the Greek mathematician Euclid around 300 BC when he arranged 465 geometric propositions into 13 books, titled 'Elements'. This, however, was not the first time geometry had been utilized. As a matter of fact, there exists evidence to believe that geometry dates all the way back to 3,000 BC in ancient Mesopotamia, Egypt!

## I. INTRODUCTION

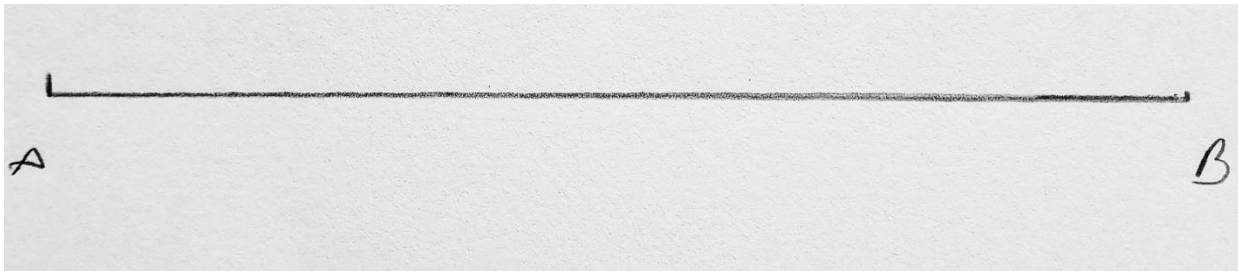
Geometry is a subject in mathematics that focuses on the study of shapes, sizes, relative configurations, and spatial properties. Derived from the Greek word meaning "earth

In this paper, I have described how to make a  $70^\circ$  angle with the help of the compass. This allows us to make more specific angles by compass.

This can open the doors to more specific mathematics.

## II. PROCEDURES

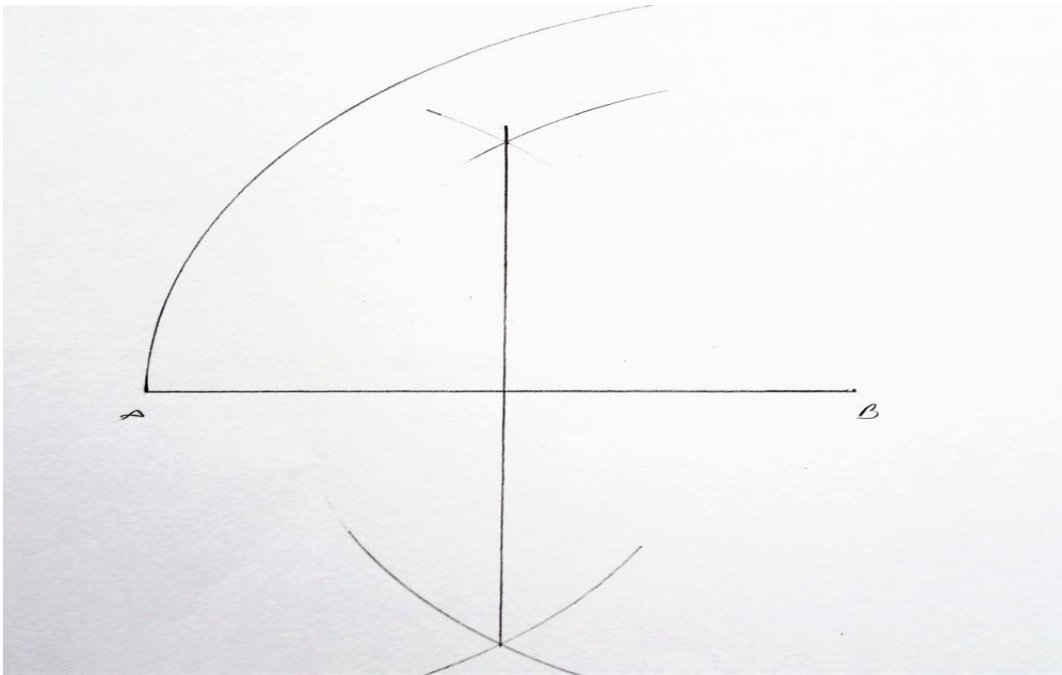
A. Make a line segment of any measurement. Let say AB



B. Make a curved line segment from any point with the help of the compass.

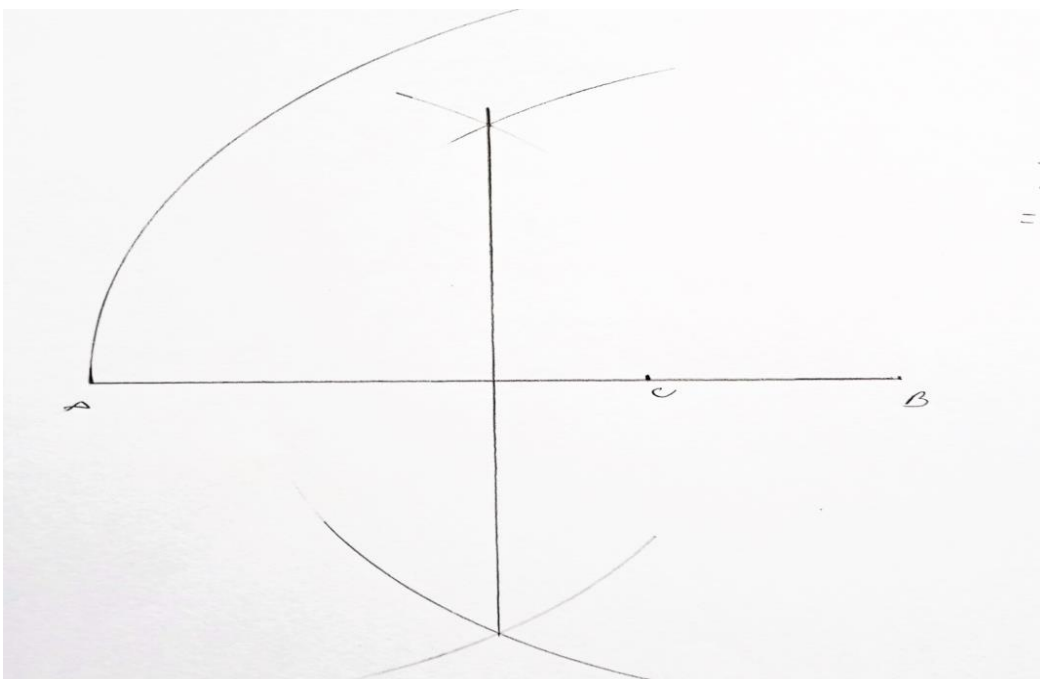


C. Make a perpendicular bisector on the line segment AB. The intersecting point is the midpoint say O.

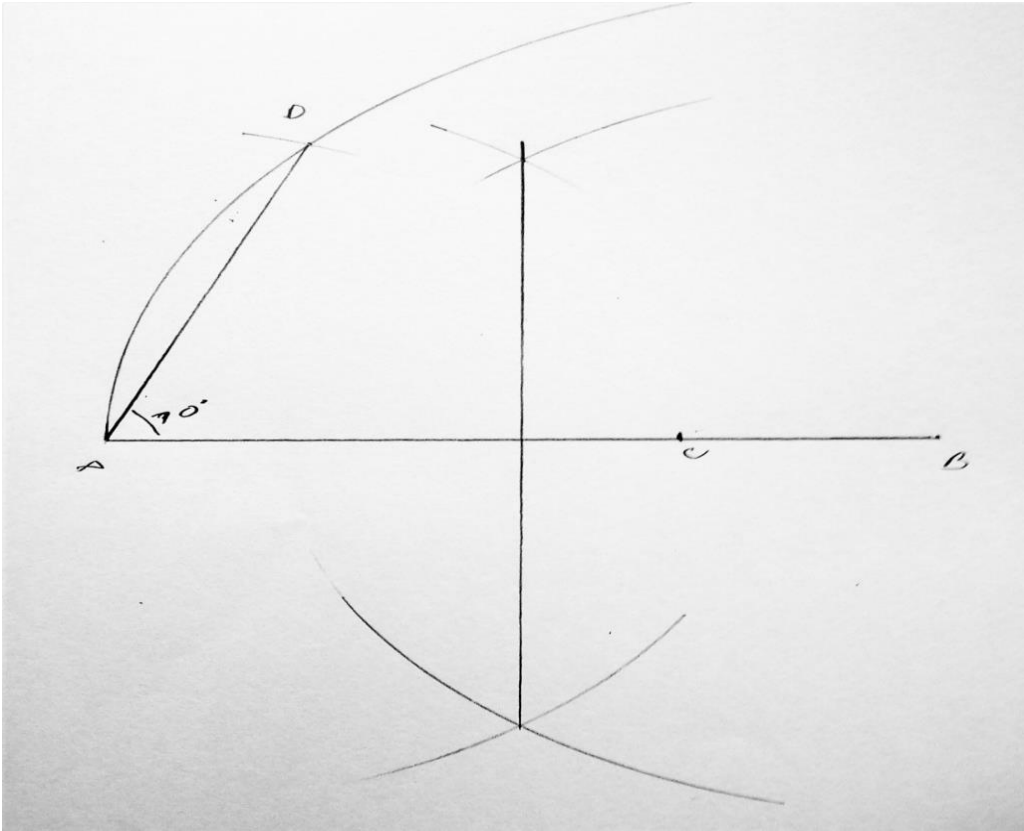


D. Now use the formula given below and increase the midpoint of line segment AB opposite in respect to the curve line by the solution of the formula.

$$\omega_i = \left( \frac{\lambda}{5} \right) - 0.1$$



E. Now keep the compass on the point A and keep the compass's pencil on the point C and make an arc on the curve line.



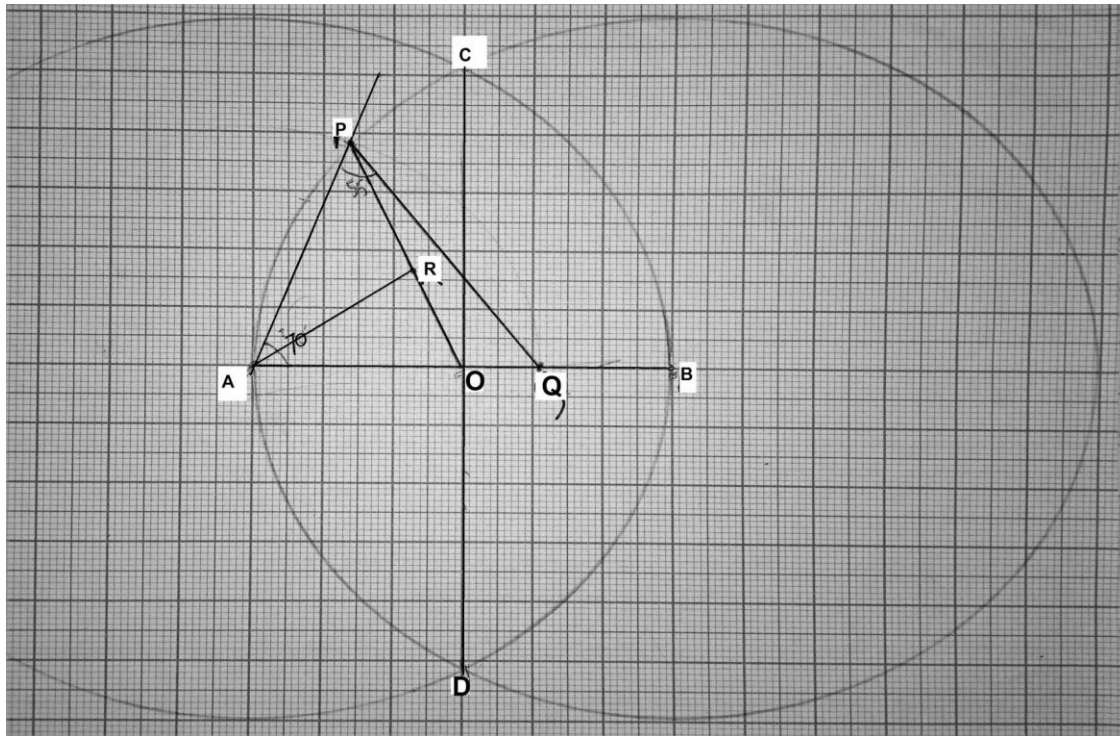
And now you get the  $70^\circ$  angle on point A.

### III. THE EQUATION

$$\omega_i = \left(\frac{\lambda}{5}\right) - 0.1$$

Here “ $\lambda$ ” refers to the length of the line segment on which the angle would be formed.

**IV. PROVE**



**V. GIVEN**

- Make a line segment of about 6 units.
- Make a circle by taking A as the centre and make another circle by taking B as the centre. Thus we get perpendicular bisector of AB let say CD.
- Make a  $70^\circ$  angle with the protector which meets point P on the circle with Centre B.

**VI. CONSTRUCTION**

- Join PO.
- Make AR median of PO.

*Assumption*  $PA = AO$

**VII. PROOF**

In  $\Delta APR$  and  $\Delta AOR$ ,

- $AR = AR$  (*common*)
- $PR = OR$  (*by const.*)
- $AP = AO$  (*assumption*)

$\therefore \Delta APR \cong \Delta AOR$  (by SSS congruence rule)

$\therefore \angle APR = \angle AOR$  (*c.p.c.t.*)

In  $\Delta APO$ ,

$$\angle PAO + \angle APR + \angle AOR = 180^\circ \quad (\because \angle \text{sum property of } \Delta)$$

$$\angle APR + \angle AOR = 180^\circ - \angle PAO$$

$$2(\angle APR) = 180^\circ - 70^\circ \quad (\because \angle APR = \angle AOR)$$

$$\therefore \angle APR = 55^\circ$$

Now, make the  $55^\circ$  angle on point "P" in anti-clockwise by taken "A" as the initial point. Now the line PQ intersects on AB at Q.

$$\therefore \angle APQ = 55^\circ$$

$\therefore$  We took,

$$AP = AO$$

BUT,  $\angle APQ$  intersect AB at Q.

$$\therefore AP = AQ$$

- $AP = AO + OQ$
- $AP = \left(\frac{AB}{2}\right) + 1.1 \quad [\because OQ = 1.1 \text{ unit by counting the box}]$
- $AP = (1.2 - 0.1) + \left(\frac{AB}{2}\right)$
- $AP = \left[\left(\frac{6}{5}\right) - 0.1\right] + \left(\frac{AB}{2}\right)$
- $AP = \left[\left(\frac{AB}{5}\right) - 0.1\right] + \left(\frac{AB}{2}\right) \quad [\because AB = 6 \text{ unit}]$
- $AP - \left(\frac{AB}{2}\right) = \frac{AB}{5} - 0.1$

Therefore, increasing point can be define as,

$$\omega_i = \left(\frac{\lambda}{5}\right) - 0.1$$

## VIII. CONCLUSION

Now we can conclude that by using the above equation we can make 70 degree angle with a compass. And after making a 70 degree angle by using the above equation we can make more discrete angles like 65, 130, etc.

## REFERENCE OF THE PAPER

- [1]. Used the internet to get information.
- [2]. Sir. B.K. Jha and sir. R.P.Sing of K.V. Duliajan who inspired me to write the theory.