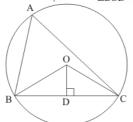


## Circles Ex 16.4 Q5

Answer:

We have to prove that  $\angle BOD = \angle A$ 



Since Circum center is the intersection of  $\perp^r$  bisectors of each side of the triangle

Now according to figure A, B, C are the vertices of  $\triangle ABC$ 

In  $\triangle BOC\ OD$  is  $\perp^r$  bisector of BC

So, BD = CD

BO = OC

And.

 $\angle BDO = \angle ODC = 90^{\circ}$ 

Therefore,

 $\Delta BDO \cong \Delta ODC$ 

 $\Rightarrow \angle BOD = DOC$ 

We know that angle formed any chord of the circle at the center is twice of the angle formed at the circumference by same chord

## Therefore,

$$\angle BAC = \frac{1}{2} \angle BOC$$

$$\Rightarrow \angle BAC = \frac{1}{2} \times 2 \angle BOD$$

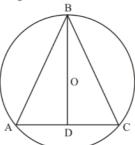
$$\Rightarrow \angle BAC = \angle BOD$$

## Hence



## Answer:

It is given that,  $\angle ABC$  is on circumference of circle BD is passing through center



Construction: - meet A and C to form AC and increase OB to D that the point of  $\perp^r$  of BC

Now in  $\Delta ABD$  and  $\Delta CBD$  we have

AD = DC (Because D is  $\perp^r$  bisector)

So  $\angle ADB = \angle CDB = 90^{\circ}$ 

BD = BD (Common in both triangles)

Then triangles are congruent.

Hence AB = BC

\*\*\*\*\*\*\*\*\* END \*\*\*\*\*\*\*