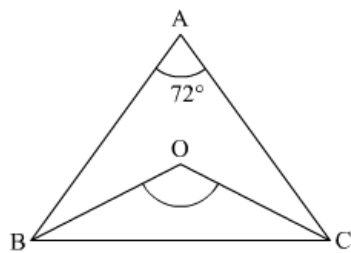Triangles and Its Angles Ex 9.1 Q7

Answer:

Since OB and OC are the angle bisector of $\angle B$ and $\angle C$

$$\angle B = 2\angle OBC \quad \angle C = 2\angle OCB$$

$\angle A + \angle B + \angle C = 180°$
$\Rightarrow 72° + 2\angle OBC + 2\angle OCB = 180°$
[Sum of the three angles of a triangle is 180°]
$\Rightarrow 2(\angle OBC + \angle OCB) = 108°$
$\Rightarrow \angle OBC + \angle OCB = 54°$
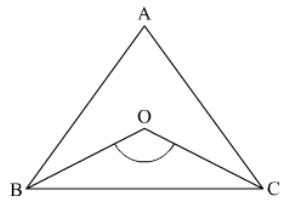$\Rightarrow 180° - \angle BOC = 54°$ [Since, $\angle OBC + \angle OCB + \angle BOC = 180°$]
$\Rightarrow \angle BOC = 126°$

Hence magnitude of $\angle BOC$ is 126°.

Triangles and Its Angles Ex 9.1 Q8

Answer:

Let ABC be a triangle and BO and CO be the bisectors of the base angle $\angle ABC$ and $\angle ACB$ respectively.

We know that if the bisectors of angles $\angle ABC$ and $\angle ACB$ of a triangle ABC meet at a point O, then $\angle BOC = 90° + \frac{1}{2}\angle A$

From the above relation it is very clear that if $\angle BOC$ is equals 90° then $\angle A$ must be equal to zero.
Now, if possible let $\angle A$ is equals zero but on other hand it represents that A, B, C will be collinear, that is they do not form a triangle.
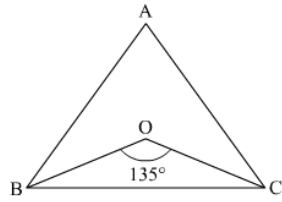It leads to a contradiction.

Hence, the bisectors of base angles of a triangle cannot enclose a right angle in any case.

Triangles and Its Angles Ex 9.1 Q9

Answer :

Let ABC be a triangle and Let BO and CO be the bisectors of the base angle $\angle ABC$ and $\angle ACB$ respectively.

We know that if the bisectors of angles $\angle ABC$ and $\angle ACB$ of a triangle ABC meet at a point O, then

$\angle BOC = 90° + \frac{1}{2}\angle A$

$\therefore 135° = 90° + \frac{1}{2}\angle A \Rightarrow 45° = \frac{1}{2}\angle A \Rightarrow \angle A = 90°$

Hence the triangle is a right angled triangle.

*********** END *********