

Mathematics

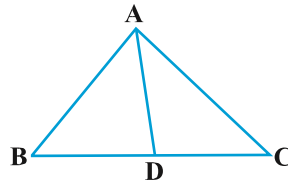
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(Chapter – 7) (Triangles)(Exemplar Problems)
(Class – IX)

Exercise 7.3

Question 11:

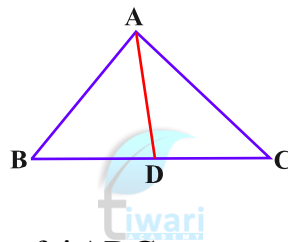
In Figure, AD is the bisector of $\angle BAC$. Prove that $AB > BD$.



Answer 11:

Given: In $\triangle ABC$, AD is the bisector of $\angle BAC$.

To Prove: $AB > BD$.



Proof: $\angle ADB$ is exterior angle of $\triangle ADC$

$$\Rightarrow \angle ADB = \angle CAD + \angle C \quad [\because \text{Exterior angle property}]$$

$$\Rightarrow \angle ADB > \angle CAD$$

$$\text{But } \angle CAD = \angle BAD \quad [\because \text{AD is the bisector of } \angle A]$$

$$\Rightarrow \angle ADB > \angle BAD$$

Now, in $\triangle ABD$,

$$\angle ADB > \angle BAD \quad [\because \text{Proved above}]$$

$$\Rightarrow AB > BD \quad [\because \text{Side opposite to greater angle is longer}]$$

Hence Proved.

