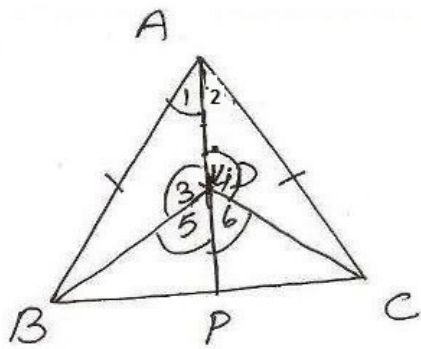


ex 7.3

NCERT Page 7

①



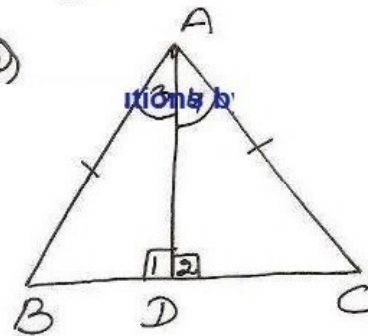
To Prove $\triangle ABD \cong \triangle ACD$
 $\triangle ABP \cong \triangle ACP$
 AP bisects $\angle A$, $\angle D$
 AP is per. bisector of BC

Proof In $\triangle ABD$ and $\triangle ACD$
 $AB = AC$ (given)
 $DB = DC$
 $AD = AD$ (common)
 $\therefore \triangle ABD \cong \triangle ACD$ by SSS prop
 $\angle 1 = \angle 2$ (C.P.C.T.)
 $\angle 3 = \angle 4$

In $\triangle ABP$ and $\triangle ACP$
 $AB = AC$
 $\angle 1 = \angle 2$
 $AP = AP$
 $\therefore \triangle ABP \cong \triangle ACP$ by SAS prop
 $\angle 3 + \angle 5 = \angle 4 + \angle 6 = 180^\circ$
 [linear pair axiom]
 $\angle 5 = \angle 6$
 $\therefore AP$ bisects $\angle A$ and $\angle D$

In $\triangle ABC$, AP is bisector of $\angle BAC$
 $\therefore AP$ is per. bisector of BC.

②



To Show
 (i) AD bisects BC
 (ii) AD bisects $\angle A$

Proof In $\triangle ADB$ and $\triangle ADC$
 $\angle 1 = \angle 2 = 90^\circ$
 $AB = AC$ (given)
 $AD = AD$
 $\therefore \triangle ADB \cong \triangle ADC$ by RHS prop
 $BD = CD$ (C.P.C.T.)
 $\Rightarrow AD$ bisects BC
 $\angle 3 = \angle 4$ (C.P.C.T.)
 $\Rightarrow AD$ bisects $\angle A$