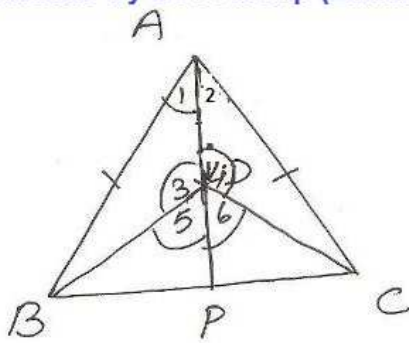


①



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

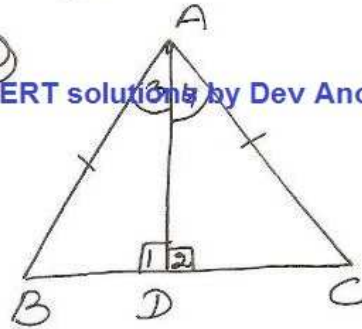
Proof In  $\triangle ABD$  and  $\triangle ACD$   
 $AB = AC$  (given)  
 $DB = DC$   
 $AD = AD$  (common)  
 $\therefore \triangle ABD \cong \triangle ACD$  by SSS prop  
 $\angle 1 = \angle 2$  (Cpct)  
 $\angle 3 = \angle 4$

In  $\triangle ABP$  and  $\triangle ACP$   
 $AB = AC$   
 $\angle 1 = \angle 2$   
 $AP = AP$   
 $\therefore \triangle ABP \cong \triangle ACP$  by SAS prop  
 $\cancel{\angle 3} + \angle 5 = \cancel{\angle 4} + \angle 6 = 180^\circ$   
 [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

NCERT solutions by Dev Anoop (Bathinda)



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  
 $BD = CD$  (Cpct)  
 $\Rightarrow AD$  bisects BC  
 $\angle 3 = \angle 4$  (Cpct)  
 $\Rightarrow AD$  bisects  $\angle A$