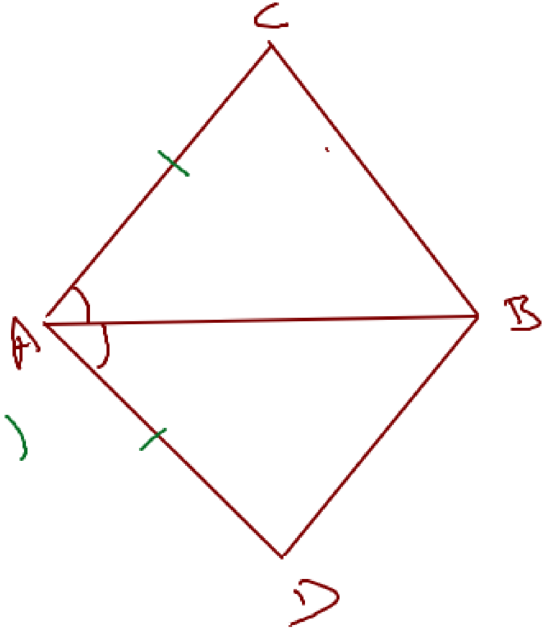
Ex. 7.1

1. To Prove: $\Delta ABC \cong \Delta ABD$



In ΔABC & ΔABD

S $AC = AD$ (given)

A $\angle BAC = \angle BAD$ ($\because$ AB is bisector of angle $\angle A$)

S $AB = AB$ (common)

By SAS axiom

$\Delta ABC \cong \Delta ABD$

Hence Proved

2. To Prove: $\triangle ABD \cong \triangle BAC$

(i) In $\triangle ABD$ and $\triangle BAC$

$AD = BC$ (given)

$\angle BAD = \angle ABC$ (given)

$AB = AB$ (common)

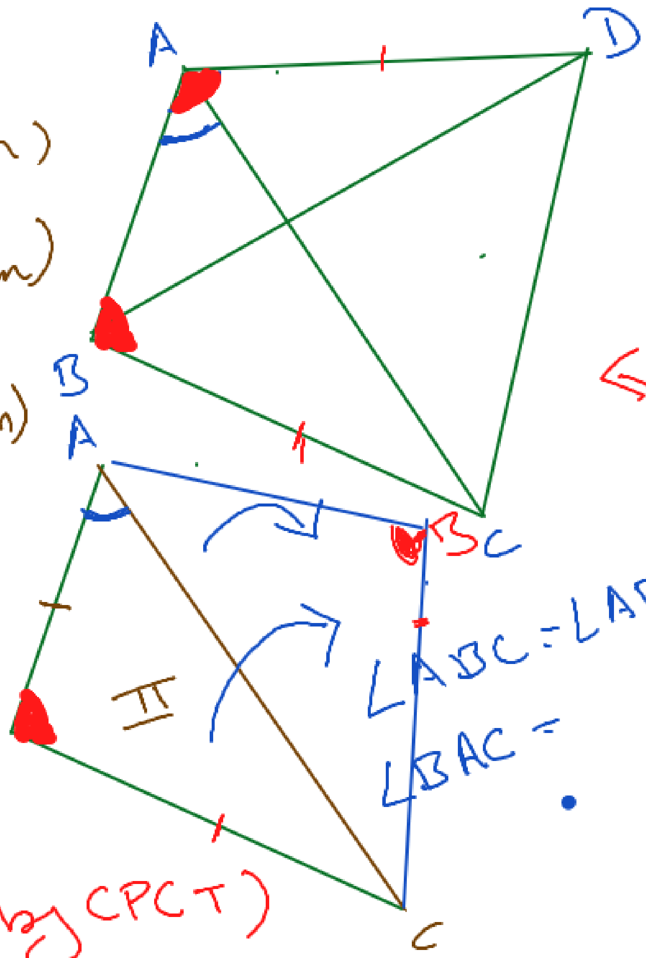
By SAS Axiom

$\triangle ABD \cong \triangle BAC$

Hence Proved.

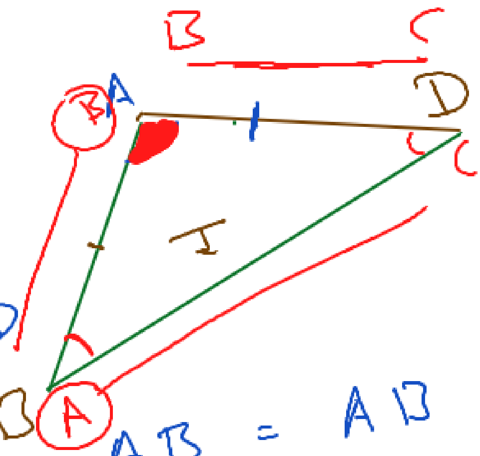
(ii) $BD = AC$ (by CPCT)

(iii) $\angle ABD = \angle BAC$ (by CPCT)



$\angle ABC = \angle ABD$

$\angle BAC =$



$AB = AB$

$BC = AD$

$AC = BD$

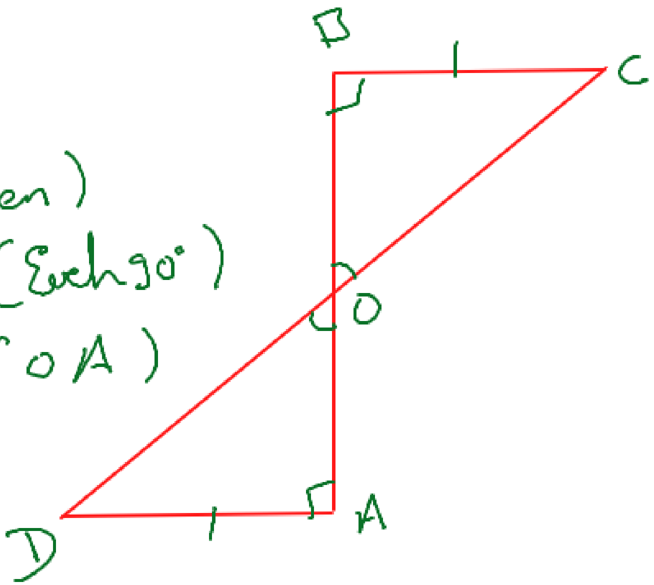
3. To Prove : OA = OB

In ΔOAD & ΔOBC

Side. $AD = BC$ (given)

Angle $\angle OAD = \angle OBC$ (Each 90°)

Angle $\angle DOA = \angle COB$ (VOA)



By AAS axiom

$\Delta OAD \cong \Delta OBC$

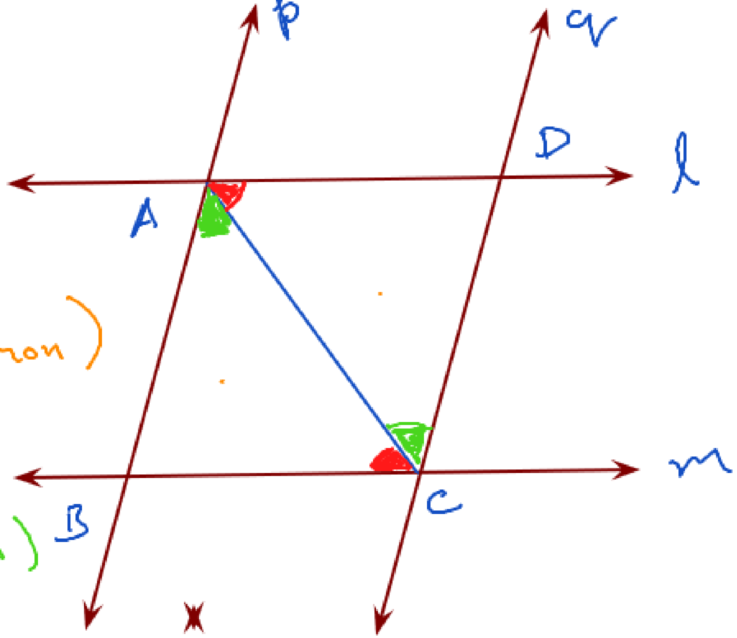
Hence By CPCT

$OA = OB$

or CD bisects AB

Hence Proved

4. To Prove: $\Delta ABC \cong \Delta CDA$



In ΔABC & ΔCDA

S $AC = AC$ (common)

A $\angle BCA = \angle DAC$ (AIA)

A $\angle CAB = \angle ACD$ (AIA)

By ASA axiom

$\Delta ABC \cong \Delta CDA$

Hence Proved