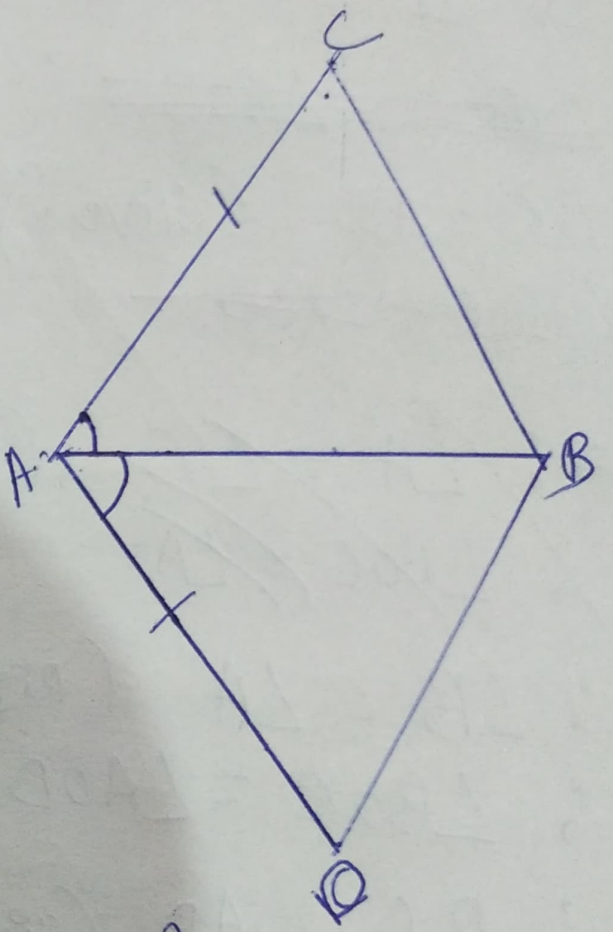
Ex 7.1

1) Given In $\triangle ACB$ & $\triangle ADB$

$AC = AD$

AB bisects $\angle A$

In $\triangle ACB$ & $\triangle ADB$



S: $AC = AD$ (given)

A: $\angle BAC = \angle BAD$ (AB bisects $\angle A$)

S: $\overline{AB} = \overline{AB}$ (Common)

$\triangle ACB \cong \triangle ADB$ (SAS criteria)

$\left.\begin{array}{l} \angle C = \angle D \\ \angle B = \angle B \\ \overline{BC} = \overline{BD} \end{array}\right\}$ CPCT

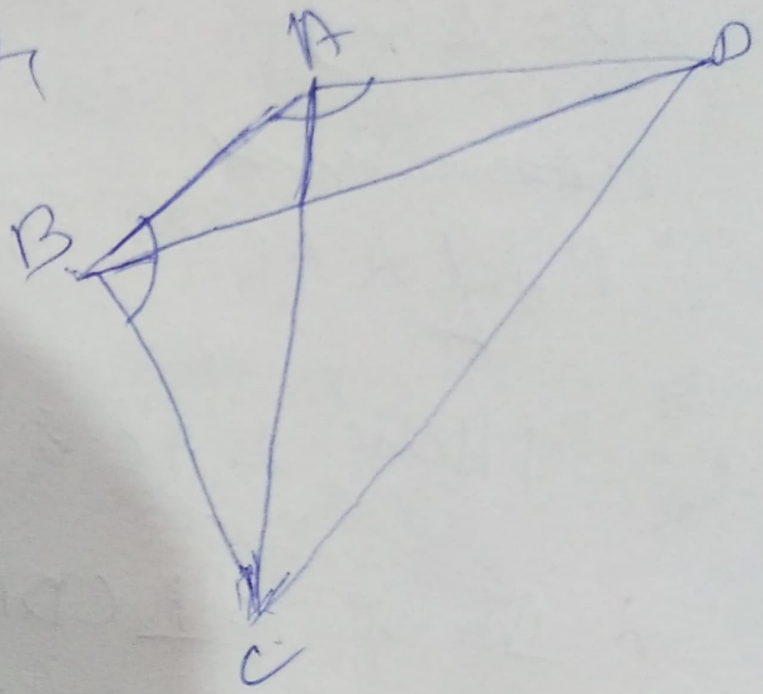
$\therefore \overline{BC}$ & $\overline{BD}$ are equal.

BC = BD

2) In $\triangle ABD \cong \triangle BAC$ (given),

BD = AC (given)

$\angle ABD = \angle BAC$ (given)



In $\triangle ABC$ & $\triangle BAC$

S: AD = BC (Given)

A: $\angle DAB = \angle CBA$ (given)

S: AB = AB (Common)

$\therefore \triangle ABD \cong \triangle BAC$ (by SAS Criterion)

BD = AC $\Rightarrow$ (CPCT)

$\angle C = \angle D$

$\angle DBC = \angle DAC$

(Ans)

3) In $\triangle OBC$ & $\triangle OAD$

~~$\angle BOC = \angle AOD$~~ (

$BC = AD$ (Given)

~~$\angle BOC = \angle AOD$~~

A ~~⊙~~ : ~~$\angle A = \angle B$~~ (Right angles)

A : $\angle BOC = \angle A$.

A : $\angle B = \angle A$ (Right angles)

A : $\angle BOC = \angle AOD$ (V.O.A)

S : $BC = AD$ (given)

~~$\triangle DBC \cong \triangle$~~

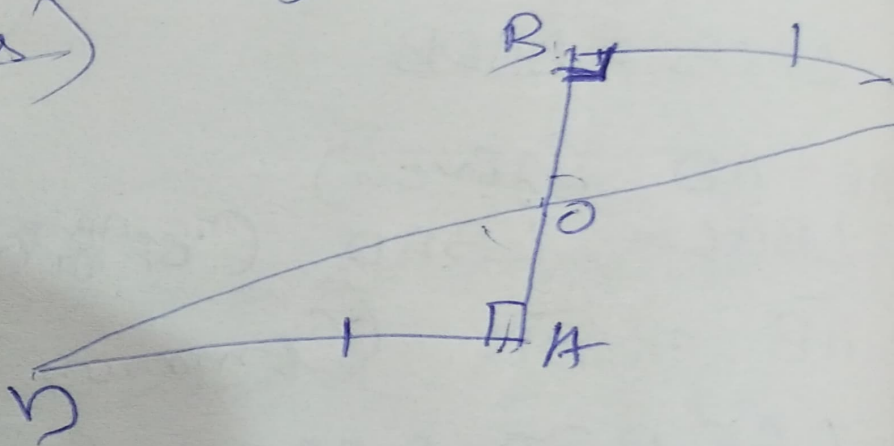
$\triangle DBC \cong \triangle OAD$ (AAS criteria)

$\Rightarrow OB = OA$

$\Rightarrow \overline{OC} = \overline{OD}$ (CPCT) [$\because OB = OA$ (by CPCT)]

$\angle D = \angle C$

(Ans)

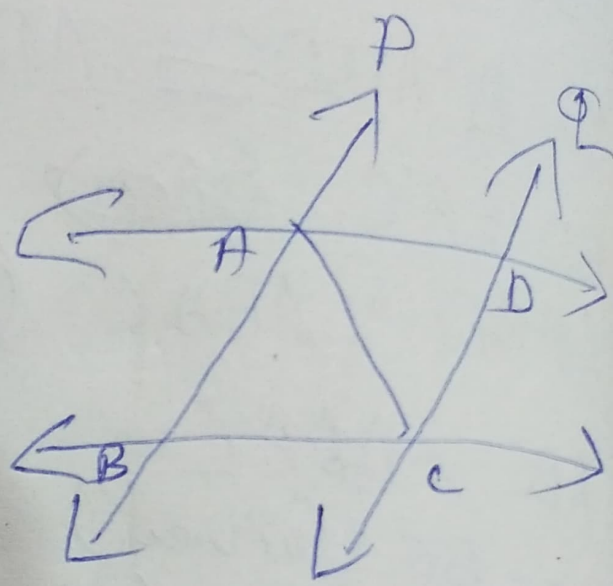


P Q

$\angle D = \angle C$ (Given)

Given $\triangle$

4) $\because$ $P \parallel Q$ & AC is transversal



$\because$ $l \parallel m$ & AC is transversal

In $\triangle ABC$ & $\triangle CDA$

$\angle BAC = \angle DCA$ (Alternate interior angles) (1)

$\angle BCA = \angle DAC$ (" " ") (2)

So,

A : $\angle BAC = \angle DCA$ (1)

S : $AC = AC$ (common)

A : $\angle BCA = \angle DAC$ (2)

$\triangle ABC \cong \triangle CDA$ (ASA Criteria)