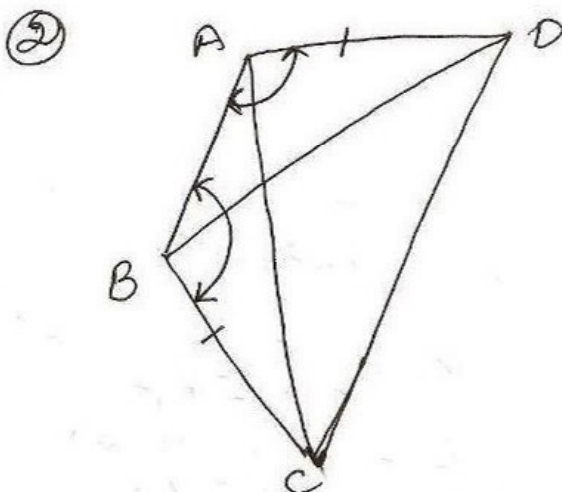


To show $\triangle ABC \cong \triangle ABD$
 $BC = BD$

Proof In $\triangle ABC$ and $\triangle ABD$
 $AC = AD$ (given)
 $\angle 1 = \angle 2$
 $AB = AB$ (common)

$\therefore \triangle ABC \cong \triangle ABD$ by SAS prop.
 $BC = BD$ (cpct)



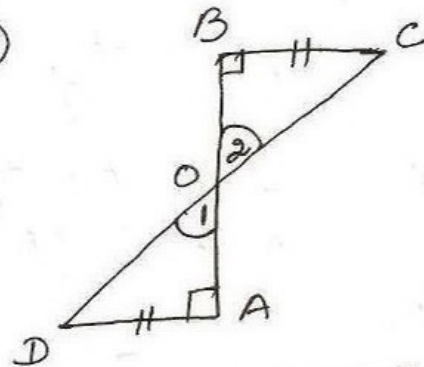
To prove
 $\triangle ABD \cong \triangle BAC$
 $BD = AC$
 $\angle ABD = \angle BAC$

Proof

In $\triangle ABD$ and $\triangle BAC$
 $AD = BC$
 $\angle DAB = \angle CBA$
 $AB = BA$

$\therefore \triangle ABD \cong \triangle BAC$ by SAS prop.

$BD = AC$ (cpct)
 $\angle ABD = \angle BAC$



To show $OA = OB$
 Proof In $\triangle OAD$ and $\triangle OBC$
 $\angle 1 = \angle 2$ (vert. opp \angle s)

$\angle A = \angle B = 90^\circ$
 $AD = BC$

$\therefore \triangle OAD \cong \triangle OBC$ by AAS corollary
 $OA = OB$ (cpct)