

NCERT Exemplar Sols. by Dev Anoop (Bathinda)

to prove $\angle DBA = \angle BOC$

proof In $\triangle ABC$, $AB = AC$

$\therefore \angle ACB = \angle ABC$ [isos. \triangle prop.]

$\angle 2 = \angle 1$ [BO bisects $\angle ABC$, CO bisects $\angle ACB$]

In $\triangle BOC$

$\angle 1 + \angle 2 + \angle BOC = 180^\circ$ [angle sum prop of \triangle]

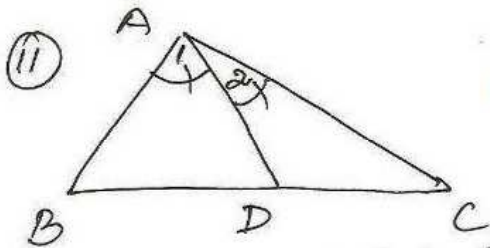
$\angle 1 + \angle 1 + \angle BOC = 180^\circ$ [$\because \angle 1 = \angle 2$]

$2\angle 1 + \angle BOC = 180^\circ$

$\angle ABC + \angle BOC = 180^\circ$ [\because BO bisects $\angle ABC$]

$180^\circ - \angle DBA + \angle BOC = 180^\circ$

$\Rightarrow \angle DBA = \angle BOC$



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to prove $AB > BD$

proof AD is bisector of $\angle A$

$\therefore \angle 1 = \angle 2$

But $\angle ADB > \angle 2$ [exterior angle of \triangle is greater than each of the remote interior angles]

$\therefore \angle ADB > \angle 1$

$AB > BD$ [In a \triangle longer side has greater angle opp. to it]