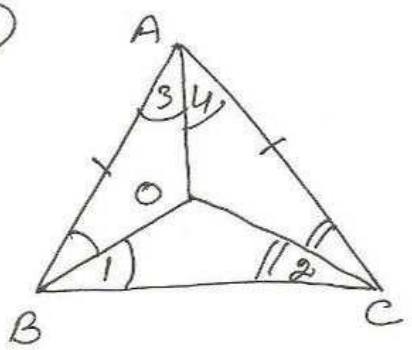
ex 7.2 NCERT Page 94

① 


To show $OB = OC$

$AO$ bisects $\angle A$

Proof In $\triangle ABC$

$AB = AC$

$\Rightarrow \angle ACB = \angle ABC$ (isos. $\triangle$ prop.)

$\frac{1}{2}\angle 1 = \frac{1}{2}\angle 2$

[$\because$ BO bisects $\angle ABC$, CO bisects $\angle ACB$]

$\Rightarrow \angle 1 = \angle 2$

$\Rightarrow OC = OB$ [converse of isos. $\triangle$ prop.]

In $\triangle AOB$ and $\triangle AOC$

$AO = AO$

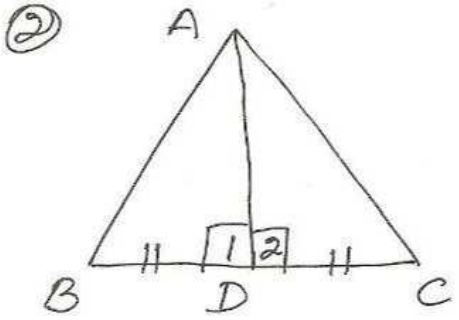
$AB = AC$ (given)

$OB = OC$ (proved)

$\therefore \triangle AOB \cong \triangle AOC$ by SSS prop.

$\angle 3 = \angle 4$ (cpct)

$\therefore AO$ bisects $\angle A$

② 


To show $AB = AC$

Proof In $\triangle ADB$ and $\triangle ADC$

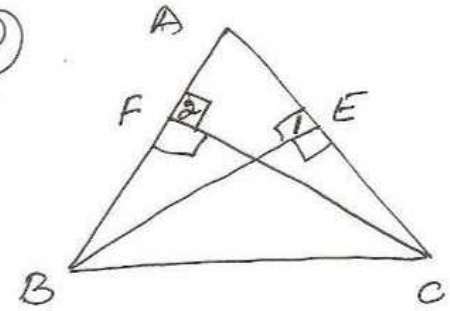
$AD = AD$

$\angle 1 = \angle 2 = 90^\circ$

$BD = CD$ (given)

$\therefore \triangle ADB \cong \triangle ADC$ by SAS prop.

$AB = AC$ (cpct)

③ 


To show $BE = CF$

Proof In $\triangle AEB$ and $\triangle AFC$

$\angle 1 = \angle 2 = 90$

$\angle A = \angle A$

$AB = AC$

$\therefore \triangle AEB \cong \triangle AFC$ by AAS cor.

$\therefore BE = CF$ (cpct)