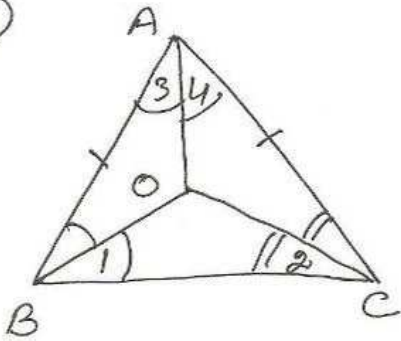


①



To show $OB = OC$
 AO bisects $\angle A$

Proof In $\triangle ABC$

$$AB = AC$$

$$\Rightarrow \angle ACB = \angle ABC$$

(isos. \triangle prop.)

$$\angle 1 = \angle 2$$

$\therefore BO$ bisects $\angle ABC$
 CO bisects $\angle ACB$

$$\Rightarrow \angle 1 = \angle 2$$

$$\Rightarrow OC = OB$$

[converse of isos. \triangle prop.]

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

$$AO = AO$$

$$AB = AC \text{ (given)}$$

$$OB = OC \text{ (proved)}$$

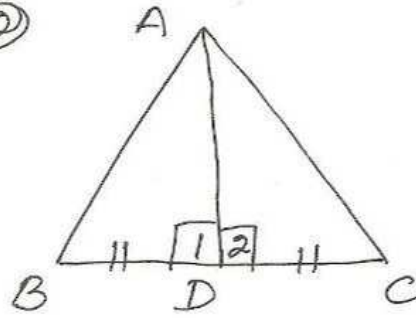
$$\therefore \triangle AOB \cong \triangle AOC \text{ by SSS prop.}$$

$$\angle 3 = \angle 4 \text{ (cpct)}$$

$\therefore AO$ bisects $\angle A$

ex 7.2

②



To show $AB = AC$
 Proof In $\triangle ADB$ and $\triangle ADC$

$$AD = AD$$

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

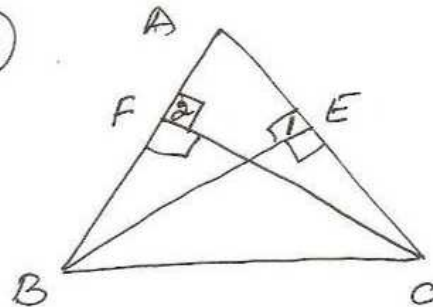
$$BD = CD \text{ (given)}$$

$$\therefore \triangle ADB \cong \triangle ADC$$

by SAS prop.

$$AB = AC \text{ (cpct)}$$

③



To show $BE = CF$

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

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

$$\angle A = \angle A$$

$$AB = AC$$

$$\therefore \triangle AEB \cong \triangle AFC \text{ by AAS con.}$$

$$\therefore BE = CF \text{ (cpct)}$$