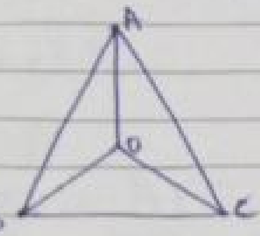
Exercise - 7.2

(1)



Given,
AB = AC and the bisectors of B and C intersect each other at O.

(i) ABC is an isosceles with AB = AC
B = C.
$1/2$ B = $1/2$ C

OBC = OCB
$\therefore$ OB = OC

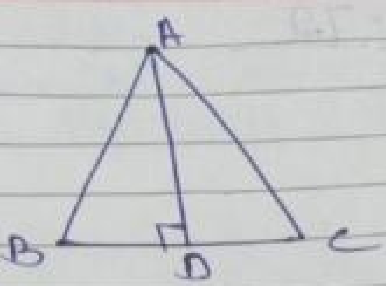
(ii) ΔAOB and ΔAOC

AB = AC
AO = AO
OB = OC (As proved already)

BAO = CAO (by CPCT)

Thus, AO bisects A.

(2)



To prove = AB = AC

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

AD = AD
ADB = ADC

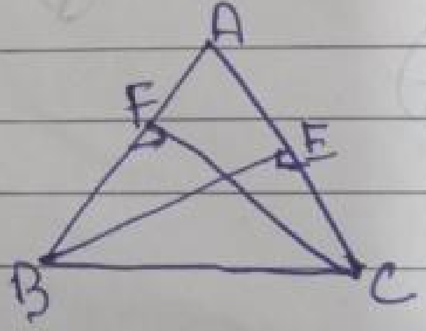
BD = CD

So, $\triangle ADB$ $\triangle ADC$ by SAS congruency criterion.

Thus,

AB = AC (by CPCT)

(3)



Given,
(i) BE and CF
(ii) AC = AB

to prove = BE = CF

Proof:

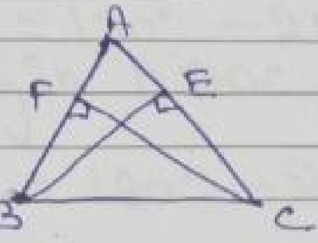
A = A

AEB = AFC

AB = AC (given in question)

∴ Δ AEB Δ AFC and so, BE = CF (by CPCT).

(4)



given that BE = CF

(i) In ΔABE and ΔACF

A = A

AEB = AFC

BE = CF

∴ ΔABE ΔACF by AAS congruency condition.

(ii) AB = AC by CPCT and so, ABC is an isosceles triangle.