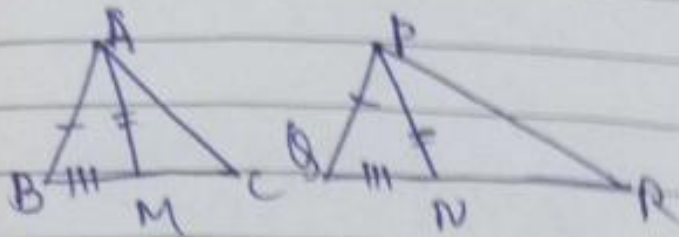


Hence, AD bisects A .

(3)



$$AB = PQ$$

$$BC = QR \text{ and } AM = PN$$

(i) $BC = BM$ and $QR = QN$

Also, $BC = QR$

So, $BC = QR$

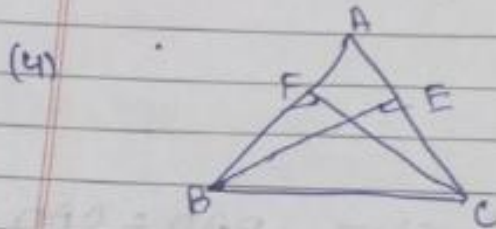
$BM = QN$

In $\triangle ABM$ and $\triangle PQN$:

$AM = PN$ and $AB = PQ$

$BM = QN$

$\therefore \triangle ABM \cong \triangle PQN$ by SSS congruency.



Now, $\triangle BEC$ and $\triangle CFB$,

$\angle BEC = \angle CFB = 90^\circ$

$BC = CB$

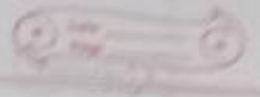
$BE = CF$

So, $\triangle BEC \cong \triangle CFB$ by RHS congruence criterion.

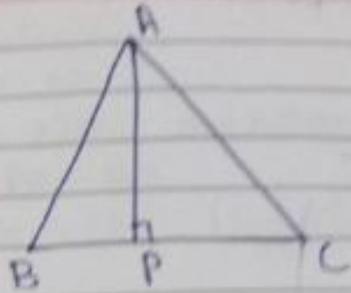
Also, $\angle C = \angle B$

Therefore, $AB = AC$ as side opposite to the equal angles is always equal.

(Example 2)



(5)



Given

AB = AC

$$\angle APB = \angle APC = 90^\circ$$

$$AB = AC$$

$$AP = AP$$

So, $\triangle ABP \cong \triangle ACP$

$$\therefore \angle B = \angle C$$

- $\angle 1 = \angle 2 = 90^\circ$
- $\angle 3 = \angle 4 = 90^\circ$
- $\angle 5 = \angle 6 = 90^\circ$
- $\angle 7 = \angle 8 = 90^\circ$

... hence we conclude that the triangles are congruent.

