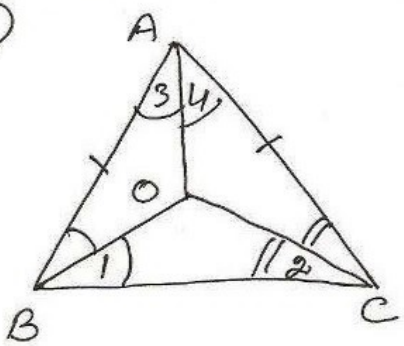
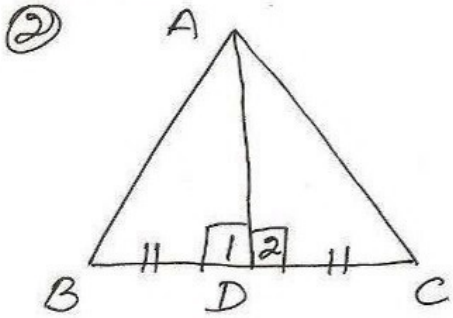
ex 7.2 NCERT Page 94

① 

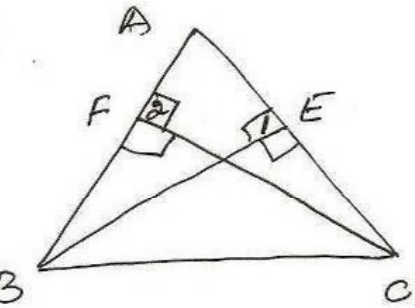
To show OB = OC
AO bisects ∠A

Proof In △ABC
AB = AC
⇒ ∠ACB = ∠ABC (isos. △ prop.)
½∠1 = ½∠2
[∵ BO bisects ∠ABC
CO bisects ∠ACB]
⇒ ∠1 = ∠2
⇒ OC = OB [converse of isos. △ prop.]

In △AOB and △AOC
AO = AO
AB = AC (given)
OB = OC (proved)
∴ △AOB ≅ △AOC by SSS prop.
∠3 = ∠4 (cpct)
∴ AO bisects ∠A

② 

To show AB = AC
Proof In △ADB and △ADC
AD = AD
∠1 = ∠2 = 90°
BD = CD (given)
∴ △ADB ≅ △ADC by SAS prop.
AB = AC (cpct)

③ 

To show BE = CF
Proof In △AEB and △AFC
∠1 = ∠2 = 90
∠A = ∠A
AB = AC
∴ △AEB ≅ △AFC by AAS cor.
∴ BE = CF (cpct)