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9.7.21 Exercise 7.3

Q3 In Δ ABM and Δ PQN
we have
BM = QN

=> 1/2 BC = 1/2 QR

AB = PQ (given)
AM = PN (given)

∴ Δ ABM ≅ Δ PQN (SSS)
∠ABM = ∠PQN

(ii) Now in Δ ABC and Δ PQR we have
AB = PQ
∠ABC = ∠PQR
BC = QR
∴ Δ ABC ≅ Δ PQR [SAS]

Q4 BE and CF are altitudes of Δ ABC
∠BEC = ∠CFB = 90°
Hypotenuse - BC
Side BE & CF
Δ BEC ≅ Δ CFB
∠BCE = ∠CBF
Δ ABC, ∠B = ∠C
AB = AC
Δ ABC is an isosceles Δ

Q5 Draw $AP \perp BC$

In $\triangle ABP$ and $\triangle ACP$

we have

$AB = AC$

$BP = CP$

$\angle ABP = \angle APC$

$AB = AB$

$\triangle ABP \cong \triangle ACP$

$\angle B = \angle C$ (CPCT)