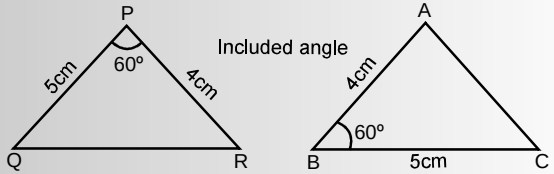
Congruent Fig ↕ Equal Shape and Equal Size

Criteria for Congruence of Triangle

2 sides and the included angle of a triangle = (corresponding) 2 sides and the included angle of other triangle

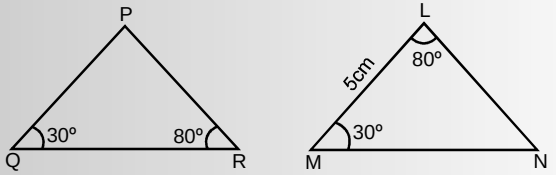


In ΔPQR and ΔABC
PQ = BC = 5cm
∠P = ∠B = 60°
PR = AB = 4cm

then by c.p.c.t.
QR = AC
∠R = ∠A
∠Q = ∠C

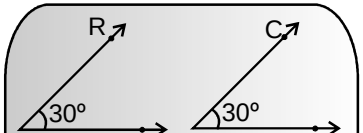
ΔPQR ≅ ΔBCA [**by S.A.S property**]

Two angles and the included side of a triangle = (Corresponding) Two angles and the included side of the other triangle



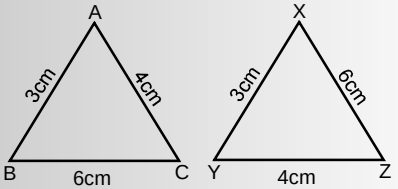
In ΔPQR and ΔLMN
∠Q = ∠M = 30°
QR = LM = 5cm
∠R = ∠L = 80°
ΔQRP ≅ ΔMLN
by A. S. A. Property

then by c.p.c.t.
∠P = ∠N
RP = LN
QP = MN



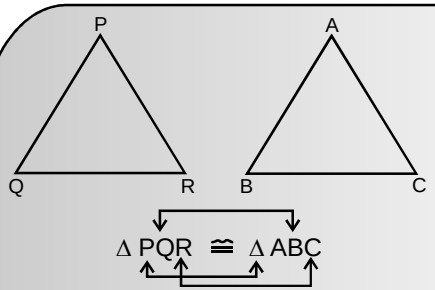
m∠PQR = m∠ ABC
∠PQR ≅ ∠ ABC

3 sides of a = triangle — Corresponding three sides of other triangle



In Δ ABC & ΔXYZ
AB = XY = 3cm
BC = XZ = 6cm
AC = YZ = 4cm
Δ ABC ≅ ΔYXZ
[**by S.S.S property**]

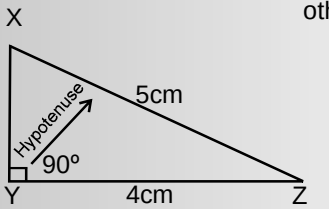
then by c.p.c.t.
∠A = ∠ Y
∠B = ∠ X
∠C = ∠Z

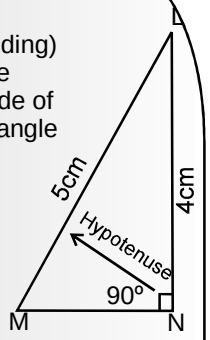


Corresponding vertex : A↔P ; B↔Q ; R↔C
Corresponding sides : AB = PQ ; BC = QR ; AC = PR
Corresponding angles :∠ A↔∠P ; ∠B↔∠Q ; ∠C↔∠R

In rt. angle triangle's

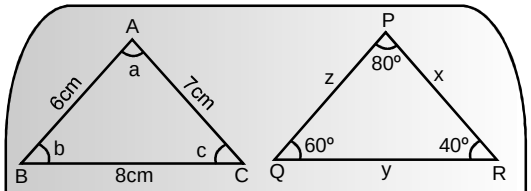
The hypotenuse and one side of a triangle = (cosrresponding) hypotenuse and one side of other triangle





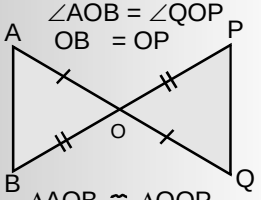
In rt. ΔXYZ and rt. ΔLMN
∠Y = ∠N = 90°
hyp. XZ = hyp. LM = 5cm
YZ = LN = 4cm
ΔYZX ≅ ΔNLM
by R.H.S. propery.

Then by c.p.c.t
∠X = ∠M
∠Z = ∠L
XY = MN

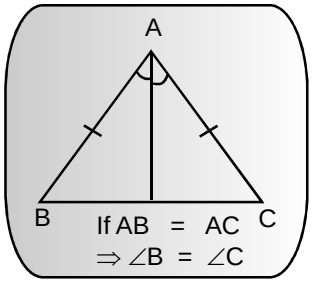


Given : ΔABC ≅ ΔPQR
to Find : x,y,z, a, b,c.
So, (i) AB = PQ
6cm = z
(ii) BC = QR
8cm = y
(iii) AC = PR
7cm = x
(iv) ∠A = ∠P
a = 80°
(v) ∠B = ∠Q
b = 60°
(vi) ∠C = ∠R
c = 40°

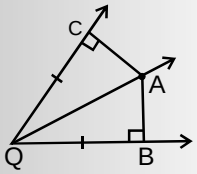
eg : In ΔAOB and ΔQOP
AO = OQ
∠AOB = ∠QOP
OB = OP



ΔAOB ≅ ΔQOP
by S.A.S. property



If AB = AC
⇒ ∠B = ∠C



In ΔACQ and ΔABQ
∠C = ∠B = 90°
hyp. QA = hyp. QA
CQ = BQ
ΔACQ ≅ ΔABQ
by R.H.S. property