

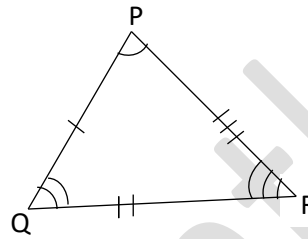
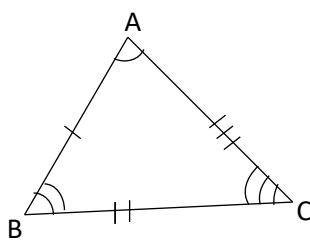
Class 7-Mathematics

Instructions for students: The notes provided must be copied to the Maths copy and then do the homework in the same copy.

Chapter 12

CONGRUENCE OF TRIANGLES

Congruence of triangles: Two triangles are said to be congruent if and only if they have exactly same shape and same size.



In $\triangle ABC$ and $\triangle PQR$, $AB = PQ$, $BC = QR$, $AC = PR$

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$\angle A = \angle P$, $\angle B = \angle Q$, $\angle C = \angle R$

$\triangle ABC$ is congruent to $\triangle PQR$

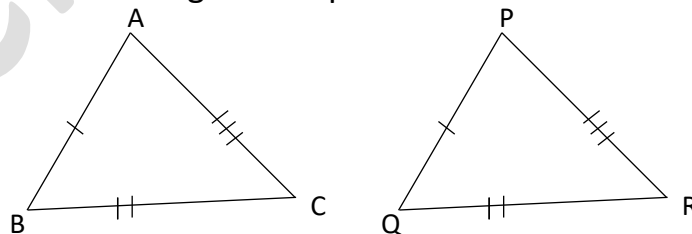
$(\triangle ABC \cong \triangle PQR)$

Important result: Corresponding parts of congruent triangles are equal.

C.P.C.T. – Corresponding Parts of Congruent Triangles.

Criteria for Congruence of Triangles

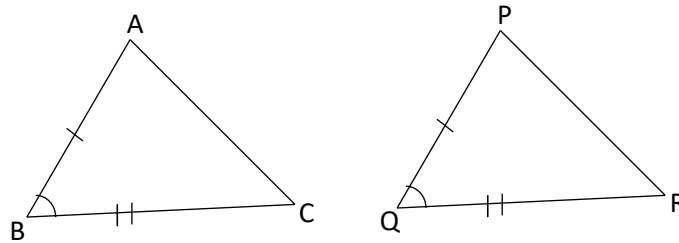
1. **SSS (Side-Side-Side)** Congruence criterion: Two triangles are congruent if three sides of one triangle are equal to three sides of the other triangle.



In $\triangle ABC$ and $\triangle PQR$, $AB = PQ$, $BC = QR$, $AC = PR$

$\therefore \triangle ABC \cong \triangle PQR$

2. **SAS (Side-Angle-Side)** Congruence criterion: Two triangles are congruent if two sides and the included angle of one triangle are equal to two sides and the included angle of the other triangle.



In $\triangle ABC$ and $\triangle PQR$, $AB = PQ$, $BC = QR$, $\angle B = \angle Q$

$\therefore \triangle ABC \cong \triangle PQR$

Exercise 12.1

3. i) $AB = QP$, $BC = PR$, $AC = QR$

The given triangles are congruent by SSS.

$\therefore \triangle ABC \cong \triangle QPR$

- ii) The given triangles are not congruent.

6. i) Not congruent.

- ii) Congruent.

$BC = QP$, $CA = PR$, $\angle C = \angle P$

$\therefore \triangle ABC \cong \triangle RQP$ (SAS)

- iii) Congruent.

$\triangle DEF \cong \triangle RPQ$ (SAS)

- iv) Not congruent (In $\triangle PQR$ 80° is not the included angle)

11. In $\triangle ABC$ and $\triangle DCB$,

i) $AB = DC$

$BC = CB$

$\angle ABC = \angle DCB$

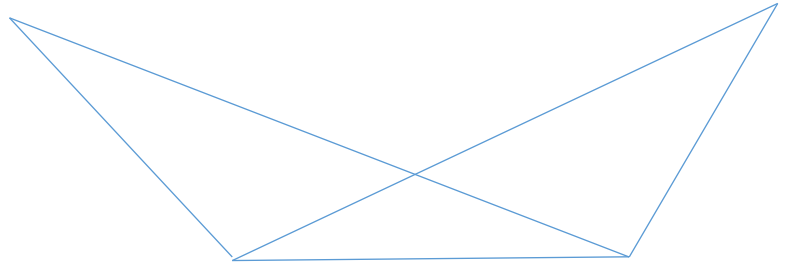
ii) $AB = DC$ (Given)

$BC = CB$ (Common)

$\angle ABC = \angle DCB$ (Given)

$\therefore \triangle ABC \cong \triangle DCB$ (SAS)

iii) $AC = DB$ (C.P.C.T)



Home work: Solve Exercise **12.1 Questions** in the Maths copy.

Class 7 Maths