

Congruence of Triangle

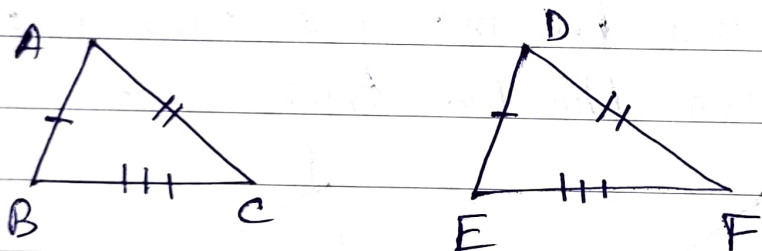
If $\triangle ABC \cong \triangle DEF$ then we have

$$\angle A = \angle D, \angle B = \angle E, \angle C = \angle F$$

C.P.C.T $\rightarrow$ corresponding parts of congruent triangles

1) SSS - criteria (Side-Side-Side)

If ~~two~~ the three sides of one triangle are equal to the corresponding three sides of another triangle then the two triangles are congruent.

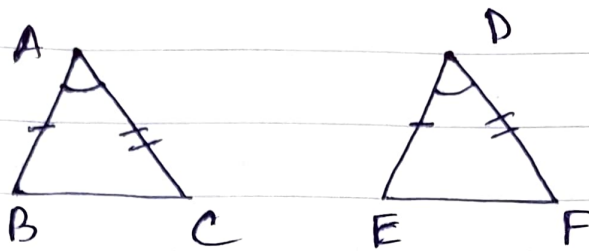


$$AB = DE, AC = DF, BC = EF$$

$$\therefore \triangle ABC \cong \triangle DEF$$

2) SAS criteria (Side-Angle-Side)

If two triangles have two sides and the included angle of the one $\triangle$ equal to corresponding sides and the included angle of the other $\triangle$ then the two triangles are congruent.

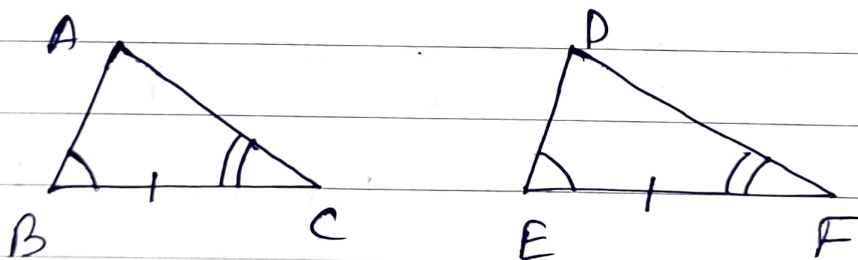


$$AB = DE, \angle BAC = \angle EDF, AC = DF$$

$$\therefore \triangle ABC \cong \triangle DEF$$

3) ASA - Criteria (Angle-Side-Angle)

If two angles and the included side of one triangle are equal to the corresponding two angles and the included sides of other triangles then the two triangles are congruent.

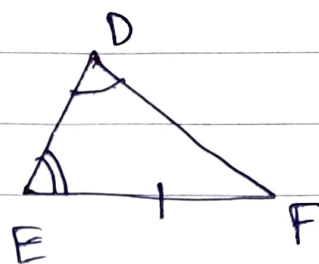
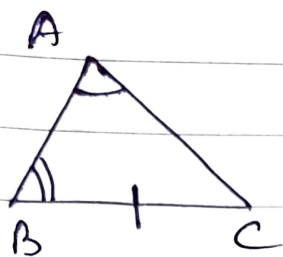


$$\angle ABC = \angle DEF, BC = EF, \angle ACB = \angle DFE$$

$$\therefore \triangle ABC \cong \triangle DEF$$

4) AAS - Criteria (Angle - Angle - Side)

If two angles and any side of a triangle are equal to the corresponding angle and side of another triangle then the two triangles are congruent.

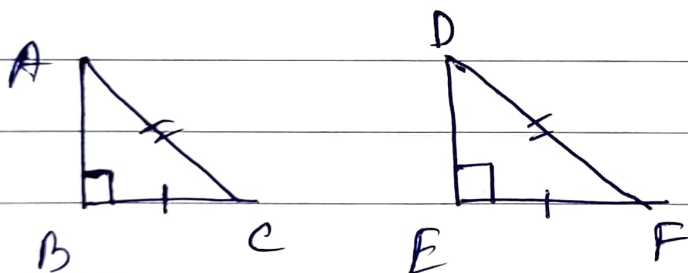


$$\angle BAC = \angle EDF, \angle ABC = \angle DEF, BC = EF$$

$$\therefore \triangle ABC \cong \triangle DEF$$

5) RHS - criteria (For Right angled $\triangle$ only)

Two right-angled triangle are congruent if one side and the hypotenuse of the one triangle are equal to corresponding side and hypotenuse of other triangle.



$$\angle ABC = \angle DEF = 90^\circ$$

$$BC = EF, AC = DF$$

$$\therefore \triangle ABC \cong \triangle DEF$$