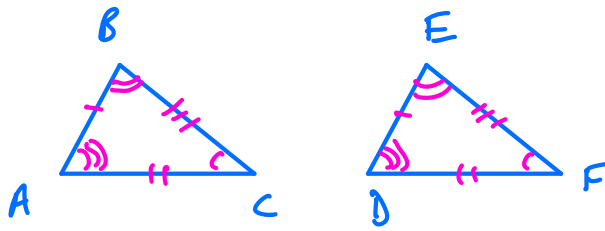


Congruent Triangles (Identical)

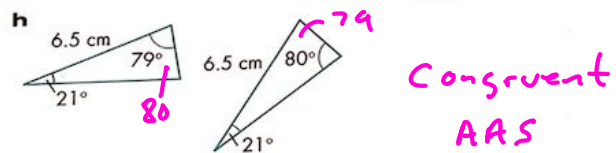
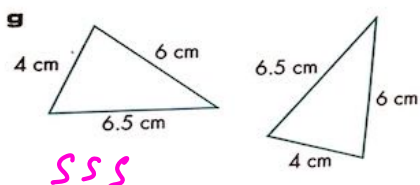
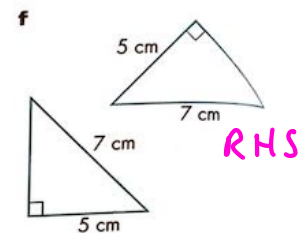
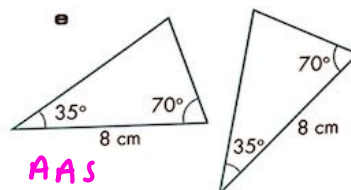
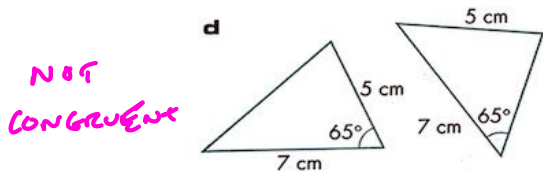
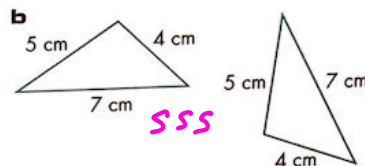
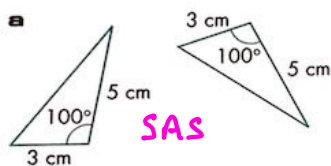


Triangles $\triangle ABC$ and $\triangle DEF$ are congruent

When are two triangles congruent

- 1) S.S.S. three sides the same
- 2) S.A.S. two sides and included angle the same
- 3) A.A.S. two angles and corresponding side the same
- 4) R.H.S. A right angle, same hypotenuse and one other side the same

1 State whether each pair of triangles in a to h is congruent. If a pair is congruent, give the condition which shows that the triangles are congruent.



2 State whether each pair of triangles given below is congruent or not. If the triangles are congruent, give the reason and state which points correspond to which.

- a ABC where $AB = 8$ cm, $BC = 9$ cm, $AC = 7.4$ cm
PQR where $PQ = 9$ cm, $QR = 7.4$ cm, $PR = 8$ cm
- b ABC where $AB = 7.5$ cm, $AC = 8$ cm, angle $A = 50^\circ$
PQR where $PQ = 8$ cm, $QR = 75$ mm, angle $R = 50^\circ$
- c ABC where $AB = 5$ cm, $BC = 6$ cm, angle $B = 35^\circ$
PQR where $PQ = 6$ cm, $QR = 50$ mm, angle $Q = 35^\circ$
- d ABC where $AB = 6$ cm, angle $B = 35^\circ$, angle $C = 115^\circ$
PQR where $PQ = 6$ cm, angle $Q = 115^\circ$, angle $R = 35^\circ$

3 Triangle ABC is congruent to triangle PQR, $\angle A = 60^\circ$, $\angle B = 80^\circ$ and $AB = 5$ cm. Find these.

- i $\angle P$ ii $\angle Q$ iii $\angle R$ iv PQ

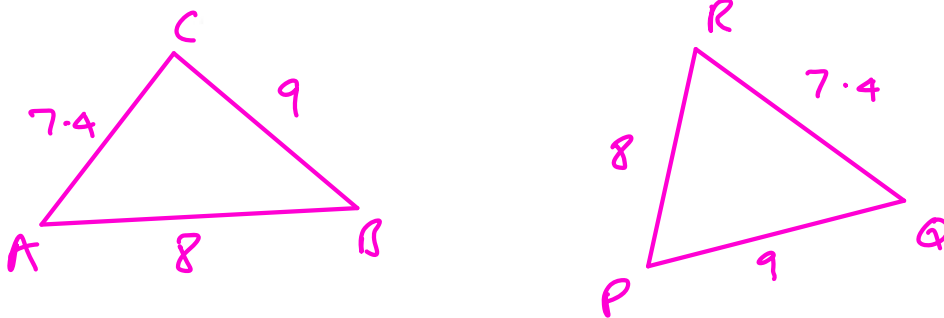
4 ABCD is congruent to PQRS, $\angle A = 110^\circ$, $\angle B = 55^\circ$, $\angle C = 85^\circ$ and $RS = 4$ cm. Find these.

- i $\angle P$ ii $\angle Q$ iii $\angle R$ iv $\angle S$ v CD

5 Draw a rectangle EFGH. Draw in the diagonal EG. Prove that triangle EFG is congruent to triangle EHG.

6 Draw an isosceles triangle ABC where $AB = AC$. Draw the line from A to X, the mid-point of BC. Prove that triangle ABX is congruent to triangle ACX.

2 a)



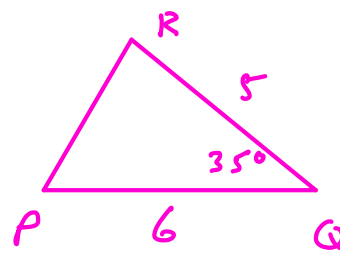
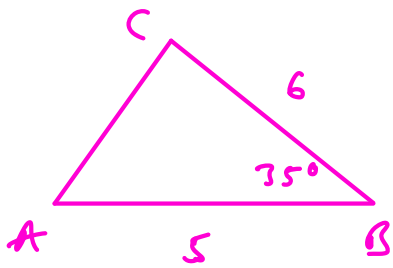
Congruent SSS

2 b)



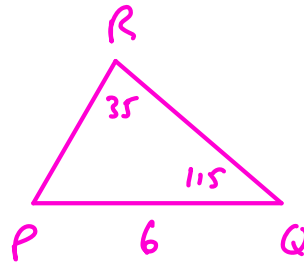
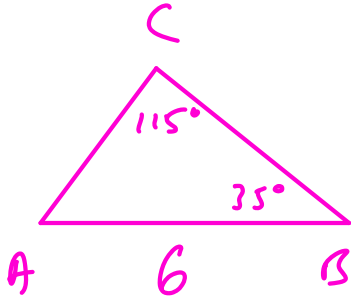
not congruent

2c)



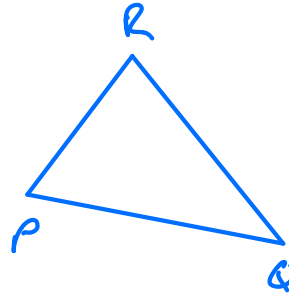
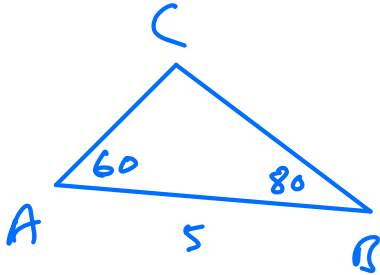
Congruent
S.A.S.

2d)



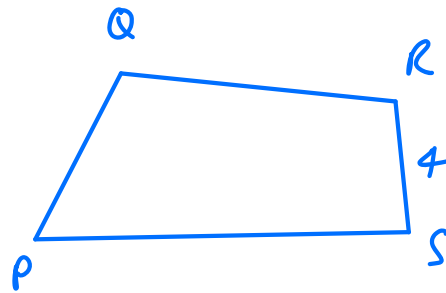
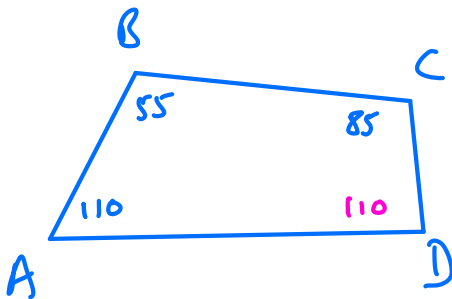
not
congruent

3)



- i) $\angle P = 60^\circ$
- ii) $\angle Q = 80^\circ$
- iii) $\angle R = 40^\circ$
- iv) $PQ = 5$

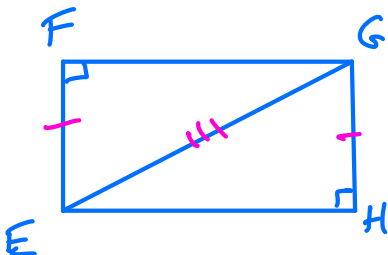
4)



- i) $\angle P = 110^\circ$
- ii) $\angle Q = 55^\circ$
- iii) $\angle R = 85^\circ$
- iv) $S = 110^\circ$

v) $CD = 4\text{ cm}$

5

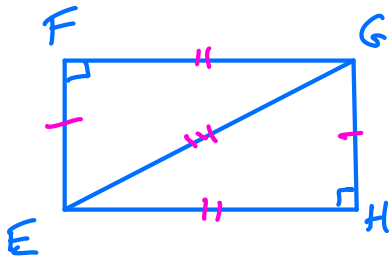


$$\angle EFG = \angle EHG = 90^\circ$$

$$EG = EG \text{ Hypotenuse}$$

$$EF = GH \text{ opp sides of rectangle}$$

$\therefore \Delta s$ EFG and EHG are
Congruent - RHS



Alternative Solution

$$EF = GH \text{ opp sides of rect}$$

$$EH = FG \text{ opp sides of rect}$$

$$EG = EG \text{ side in common}$$

$\therefore \Delta s$ EFG and EHG are congruent - S.S.S.