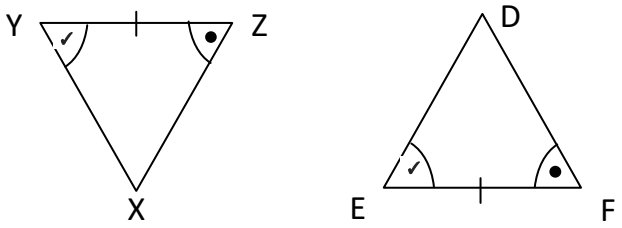
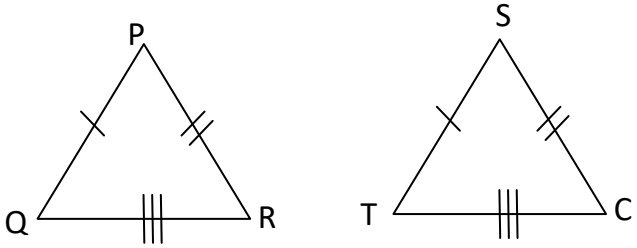
Criteria for Congruence of Triangles

1. **Given below, each pair of triangles has markings indicating equal parts. Name the congruence condition (SAS, ASA, SSS, RHS), if any, that will establish the two triangles of a pair to be congruent.**

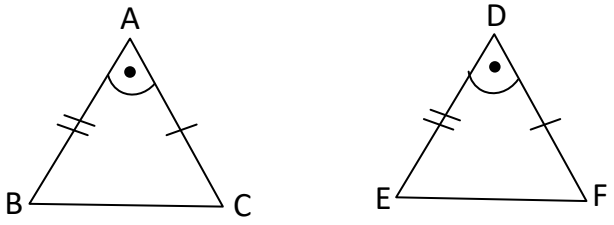
A.



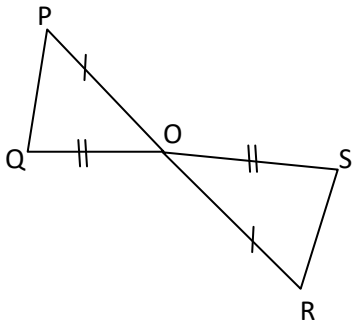
B.



C.

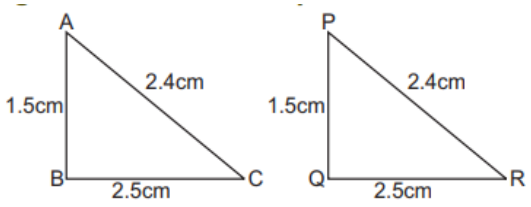


D.

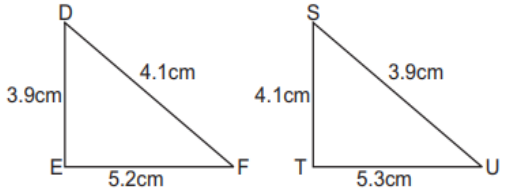


2. **Given below, lengths of the sides of the triangles are indicated. By applying the SSS congruence rule, state which pairs of triangles are congruent. In case of congruent triangles write the result in symbolic form.**

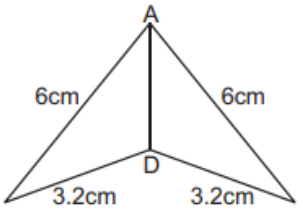
A.



B.



C.

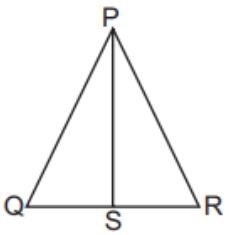


3. **In the given figure, PQ = PR and S is the midpoint of QR.**

   A. State the three pairs of equal parts in ΔPQS and ΔPRS

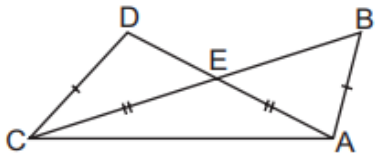
   B. Is Δ PQS ≅ PRS? Give reasons.

   C. Is ∠Q = ∠R?

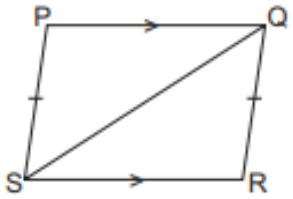


4. **ΔABC and ΔDBC are both isosceles on a common base BC such that A and D lie on the same side of BC. Are triangles ADB and ADC congruent? Which condition do you use? If ∠BAC = 40° and ∠BDC = 100°, then find ∠ABD.**

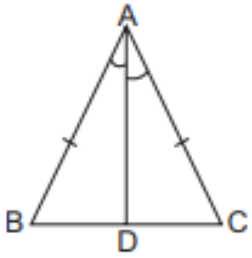
5. **In the given figure, AB = CD and AD = BC. Prove that ΔADC ≅ ΔCBA.**



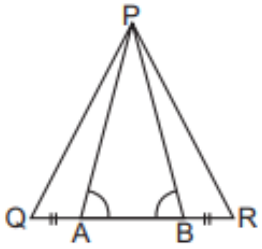
6. **In the given figure, PQ || SR and PS = QR.**
   A. State the three measurements of ΔSRQ. Which are equal to the three measurements of ΔSPQ.
   B. Is Δ SRQ ≅ ΔSPQ?
   C. Is Δ SRQ ≅ ΔSQP?



7. **In the given figure, ΔABC is shown as an isosceles triangle with AB = AC and AD is the bisector of ∠A.**
   A. Name the two triangles which are congruent.
   B. Is AD = DC?

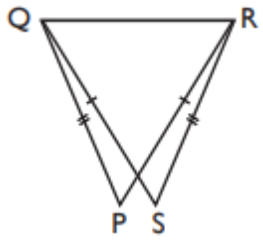


8. **Prove that in an isosceles triangle, the angles opposite to the equal sides are equal.**
9. **In ΔPQR, A and B are two points on QR. Such that ∠PAB = ∠PBA and QA = BR. Prove that ΔPQA ≅ ΔPRB**

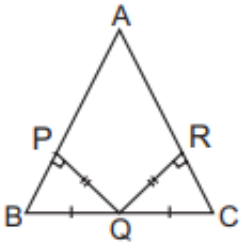


10. **Show that the bisector of the vertical angle of an isosceles triangle bisects the base at right angles.**

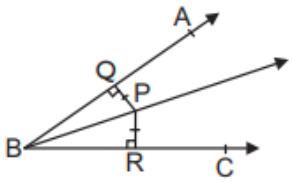
11. **In the given figure, ΔPQR and ΔSQR are on the same base QR. Also, PQ = SR and PR = SQ. Is ΔPQR ≅ ΔSQR?**



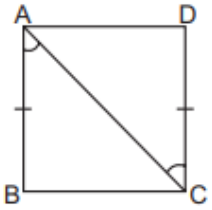
12. **In the given figure, PQ = QR, BQ = QC, QP ⊥ AB, QR ⊥ AC. Prove that AB = AC**



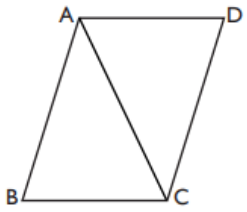
13. **In the given figure, PQ ⊥ BA and PR ⊥ BC, such that PQ = PR. Show that BP bisects ∠ABC.**



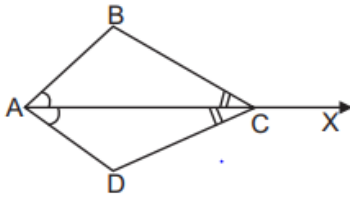
14. **In the given figure, ΔABC and ΔDCB are right angled at A and D respectively and AC = DB. Prove that ΔABC ≅ ΔDCB.**



15. In the given figure, AB || CD and AB = CD. Prove that ΔABC ≅ ΔCDA.

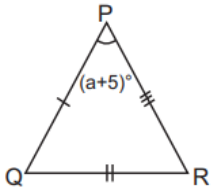


16. In the given figure, AX is the ∠BAD and ∠BAD and ∠BCD. Prove that AB = AD.



17. In the given figure, ΔPQR ≅ ΔLMN. Find the value of a and b.

a.



b.