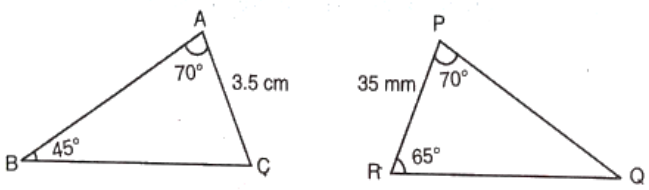
TRIANGLES

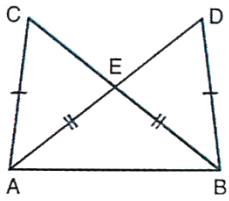
1. State giving reasons, whether the two given triangles are congruent or not



2. A St. line AB is bisected at C and through C a St. line DC is drawn perpendicular to AB. Prove that AD=BD.

3. AX is the bisector of ∠BAC; P is any point on AX. Prove that the perpendiculars drawn from P to AB and AC are equal.

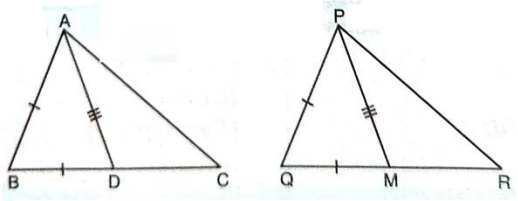
4. In fig. it is given that AC= BD and AC=BC. Prove that △ABD ≅△ABC.



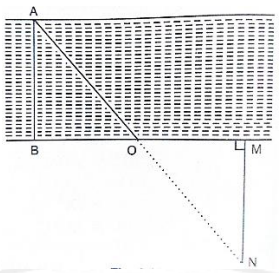
5. If △ABC is an isosceles triangles such that AB=AC, then altitude AD from A on BC bisects BC.

6. In a △ ABC, the internal bisectors of ∠B and ∠C meet at O. Prove that OA is the internal bisector of ∠A.

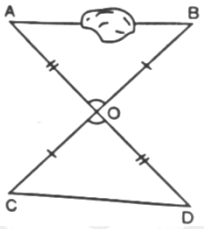
7. In the figure two sides AB and BC and the median AD drawn to one of these sides of the △ABC are equal to the two sides PQ and QR and the corresponding median PM of the other △PQR. Prove that the two triangles are congruent.



8. In figure, explain how one can find the breadth of the river without crossing it.

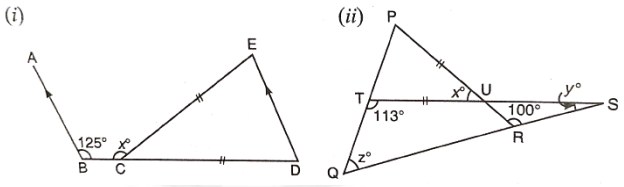


9. Shyam wishes to determine the distance between two objects A and B but there is an obstacle between the two objects (as shown in the fig.) which prevents him from making a direct measurement. He designs an ingenious way to overcome this difficulty. First, he fixes a pole at convenient point O so that from O, both ends are visible. Then he fixes another pole at a point D on the line AO (produced) such that AO=DO. In a similar way, he fixes a third pole at a point C on the BO (produced) such that BO = CO. then the measures CD and finds that CD= 170 cm. prove that the distance between the objects A and B is also 170 cm.



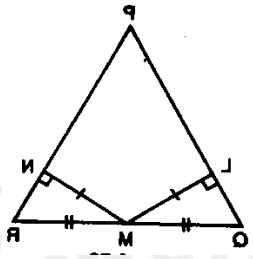
10. A point O is taken inside a rhombus ABCD such that its distances from the angular points D and B are equal. Show that AO and OC are in one and the same st. line.
In $\triangle ABC$, $\angle A = 40°$ and AB = AC. Find $\angle B$ and $\angle C$.

11. Find the lettered angles from the following figures.



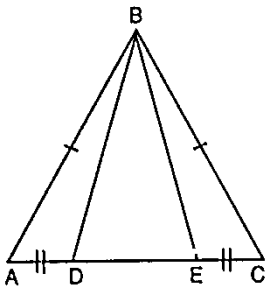
12. Prove that each angle of an equilateral triangle is 60°

13. In figure it is given that LM=MN, QM=MR, ML⊥PQ and MN ⊥PR. Prove that PQ=PR.



14. AD, BE and CF, the altitudes of △ABC are equal. Prove that △ABC is an equilateral triangle.

15. In figure it is given that AB= BC and AD =EC. Prove that △ABE ≅△CBD.



16. In a right angled triangle, one acute angle is double the other, prove that the hypotenuse is double the smallest side.

17. If in △ABC, BC = CA and ∠A =35°, which is the longer. BC or AB?

18. PQRS is a quadrilateral with PS as its greatest and QR as its least side, Prove that ∠PQR >∠PSR and ∠QRS>∠SPQ.

19. Prove that the hypotenuse is the greatest side in a right- angled triangle.

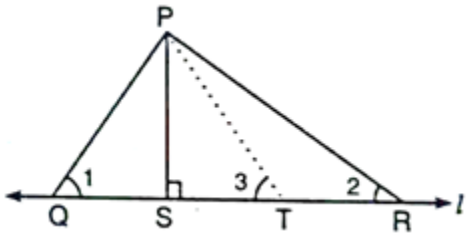
20. If S is any point on the base QR produced, of an isosceles ΔPQR, prove that PS>PQ

21. Show that the sum of the three altitudes of a triangle is less than the sum of the three sides of the triangle

22. (a)Prove that any two sides of a triangle are together greater than twice the median drawn to the third side.

(b) Hence, prove that the perimeter of a triangle is greater than the sum of its medians.

23. In the given figure, PS ⊥ l and SR>SQ. Prove that PR>PQ.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