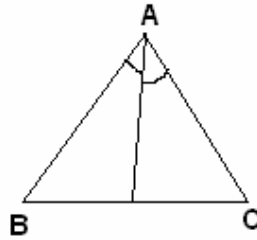
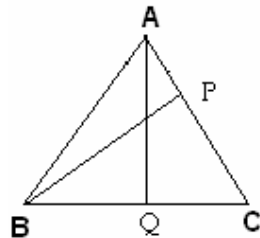


CONGRUENCE OF TRIANGLES

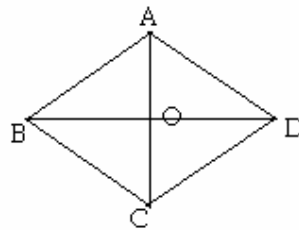
1. State the conditions under which two triangles can be congruent.
2. Prove that each angle of an equilateral triangle is 60° .
3. If the bisector of the vertical angle of a triangle bisects the base, prove that the triangle is isosceles.



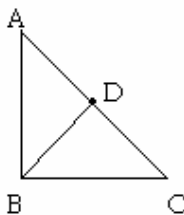
4. In an isosceles triangle, prove that the altitude from the vertex bisects the base.
5. If the altitude from one vertex of a triangle bisects the opposite side, prove that the triangle is isosceles.
6. Prove that the perpendicular drawn from the vertices of equal angles of an isosceles triangle to the opposite are equal.
7. If the altitudes from the vertices of a triangle to the opposite sides are equal, prove that the triangle is isosceles.



8. Prove that the medians of an equilateral triangle are equal.
9. If the isosceles triangles have a common base, prove that the line segment joining their vertices bisects the common base at right angles.

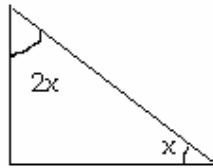


9. If D is the midpoint of the hypotenuse AC of a right angled ΔABC , prove that $BD = \frac{1}{2} AC$.

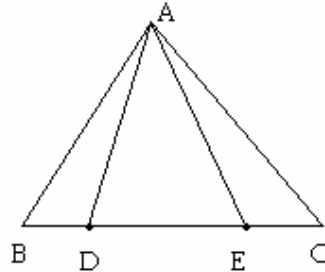


(Hint. Produce BD to E such that $BD = DE$. Join EC)

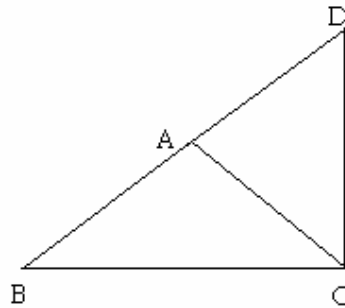
10. In a right angled triangle, one acute angle is double the other. Prove that the hypotenuse is double the smallest side.



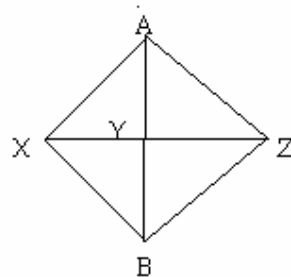
11. D and E are the points on the base BC of $\triangle ABC$ such that $BD = CE$, $AD = AE$ and $\angle ADE = \angle AED$. Prove that $\triangle ABE \cong \triangle ACD$.



12. In the fig. ABC is a triangle with $AB = AC$. Side BA is produced to D such that $AB = AD$. Prove $\angle BCD$ is a right angle.



13. In the fig. $AY \perp ZY$ and $BY \perp XY$ such that $AY = ZY$ and $BY = XY$. Prove that $AB = ZX$.



In the fig., sides AB and BC and median AD of $\triangle ABC$ are correspondingly equal to sides PQ and QR and median PM of $\triangle PQR$. Prove that $\triangle ABC \cong \triangle PQR$.

