DAV PUBLIC SCHOOL, IFFCO, PARADEEP
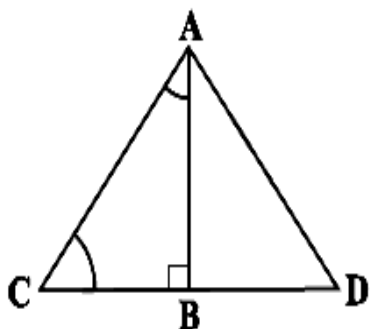
1. ABC is a triangle with $\angle B = 2\angle C$. D is a point on BC such that AD bisects $\angle BAC$ and AD=CD. Prove that $\angle BAC = 72^0$.

2. Bisectors of the angles B and C of an isosceles triangle with AB = AC intersect each other at O. BO is produced to a point M. Prove that $\angle MOC = \angle ABC$.

3. ABC is a right triangle and right angled at B such that $\angle BCA = 2\angle BAC$. Show that hypotenuse AC = 2 BC.

4. If the bisector of an angle of a triangle also bisects the opposite side, prove that the triangle is isosceles.

5. O is a point in the interior of a square ABCD such that OAB is an equilateral triangle. Show that Δ OCD is an isosceles triangle.

6. Show that in a quadrilateral ABCD, AB + BC + CD + DA < 2 (BD + AC)

7. In a triangle ABC, D is the mid-point of side AC such that BD = $\frac{1}{2}$ AC. Show that $\angle ABC$ is a right angle.

8. In a right triangle, prove that the line-segment joining the mid-point of the hypotenuse to the opposite vertex is half the hypotenuse.

9. ABC is a right triangle such that AB = AC and bisector of angle C intersects the side AB at D. Prove that AC + AD = BC.

10. AB and CD are the smallest and largest sides of a quadrilateral ABCD. Out of ∠B and ∠D decide which is greater.

11. ABCD is quadrilateral such that AB = AD and CB = CD. Prove that AC is the perpendicular bisector of BD.

12. Line segment joining the mid-points M and N of parallel sides AB and DC, respectively of a trapezium ABCD is perpendicular to both the sides AB and DC. Prove that AD = BC.