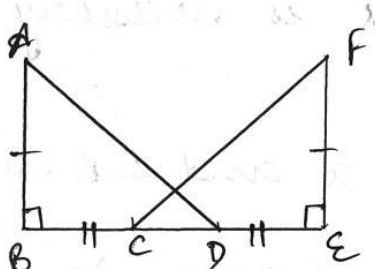
CLASS - IX

# MATHS ASSIGNMENT

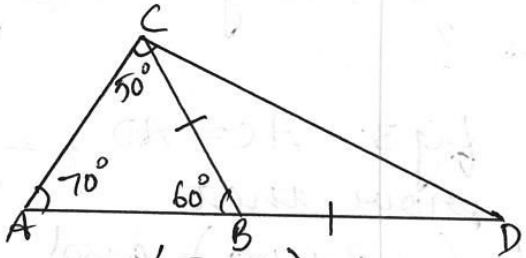
## (Ch-7) Triangles

(1.) Prove that the medians bisecting the equal sides of an isosceles triangle are also equal.

(2.) In fig 1. it is given that $AB = FE$, $BC = ED$, $AB \perp BD$ and $FE \perp EC$. Prove that $\triangle ABD \cong \triangle FEC$.



(Fig 1.)



(Fig 2.)

(3.) Prove that the angles opposite to equal sides of an isosceles triangle are equal. Is the converse true?

(4.) AD, BE and CF, the altitudes of $\triangle ABC$ are equal. Prove that $\triangle ABC$ is an equilateral triangle.

(5.) In $\triangle ABC$, side AB is produced to D such that $BD = BC$. If $\angle B = 60^\circ$ and $\angle A = 70^\circ$, prove that:
(i) $AD > CD$ (ii) $AD > AC$ in [Fig 2.]

(6.) In $\triangle ABC$, if $\angle A = 35^\circ$ and $\angle B = 65^\circ$, then find the longest side of the triangle.

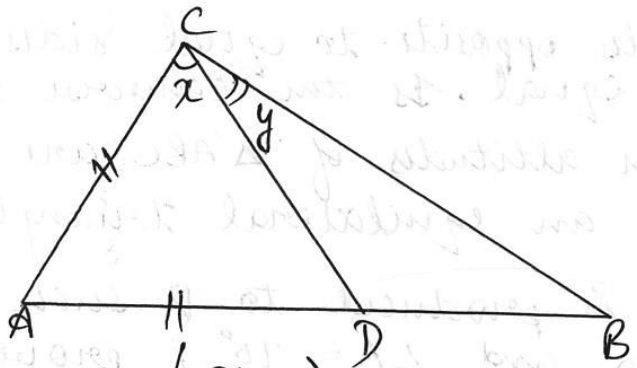
(7.) P is a point on the bisector of $\angle ABC$. If the line through P, parallel to BA meet BC at Q, prove that BPQ is an isosceles triangle.

(8.) ABC and DBC are two triangles on the same base BC such that A and D lie on the opposite sides of BC, $AB = AC$ and $DB = DC$. Show that AD is the perpendicular bisector of BC.

(9.) There is a triangular park PQR whose angles P, Q and R are in ratio 2:4:3 respectively. Three friends Rashmi, Sita and Geeta go daily on morning walk and walk along these three sides PQ, QR and PR respectively. Who walks maximum distance among these three? Who walks least? Why morning walk is necessary for us?

(10.) In fig 3. $AC = AD$, $\angle ACD = x$ and $\angle BCD = y$. Then prove that

$x = \frac{1}{2}(\angle B + \angle C)$ and $y = \frac{1}{2}(\angle C - \angle B)$




(Fig 3.)