

THE INDIAN SCHOOL
KINGDOM OF BAHRAIN

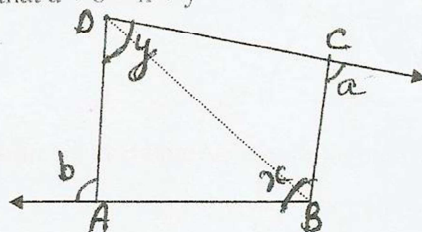
ASSIGNMENT

STD: IX

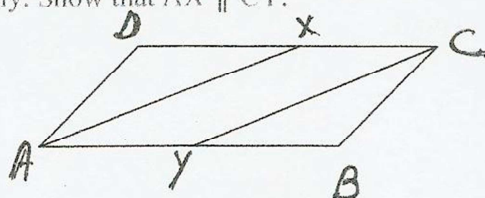
SUBJECT: MATHEMATICS

CHAPTER: QUADRILATERALS

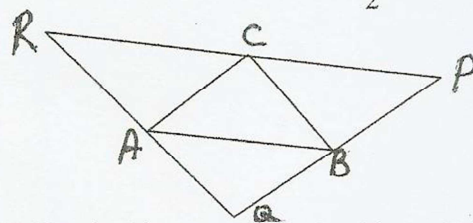
1. The sides BA and DC of a quadrilateral ABCD are produced as shown in figure given below. Prove that $a + b = x + y$



2. In a quadrilateral ABCD, CO and DO are bisectors of $\angle C$ and $\angle D$ respectively. Prove that $\angle COD = \frac{1}{2}(\angle A + \angle B)$.
3. Prove that in a parallelogram the bisectors of any two consecutive angles intersect at right angles.
4. In a parallelogram ABCD, $\angle D = 115^\circ$, determine the measure of $\angle A$ and $\angle B$.
5. ABCD is a parallelogram and line segments AX, CY bisect the angles A and C respectively. Show that $AX \parallel CY$.



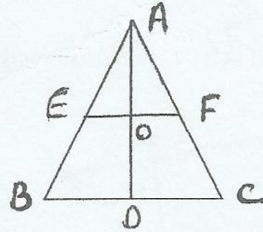
6. Given $\triangle ABC$, lines are drawn through A, B and C, parallel respectively to the sides BC, CA and AB forming $\triangle PQR$. Show that $BC = \frac{1}{2}QR$.



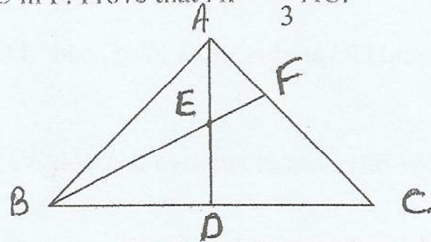
7. In a parallelogram ABCD, the bisector of $\angle A$ also bisects BC at X. Prove that $AD = 2AB$.
8. ABCD is a parallelogram. AB is produced to E so that $BE = AB$. Prove that ED bisects BC.

9. D, E and F are respectively, the mid points of sides BC, CA and AB of an equilateral triangle ABC. Prove that $\triangle DEF$ is also an equilateral triangle.

10. In figure, $\triangle ABC$ is isosceles with $AB = AC$. D, E and F are respectively mid-points of sides BC, AB and AC. Show that line segment AD is perpendicular to the line segment EF and is bisected by it.



11. In $\triangle ABC$, AD is the median through A and E is the mid-point of AD. BE produced meets AC in F. Prove that $AF = \frac{1}{3} AC$.



12. ABCD is a square. E, F, G and H are points of AB, BC, CD and DA respectively, such that $AE = BF = CG = DH$. Prove that EFGH is a square.
13. M and N divide the side AB of $\triangle ABC$ into three equal parts. Line segments MP and NQ are both parallel to BC and meet AC in P and Q, respectively. Prove that P, Q divide AC into three equal parts.