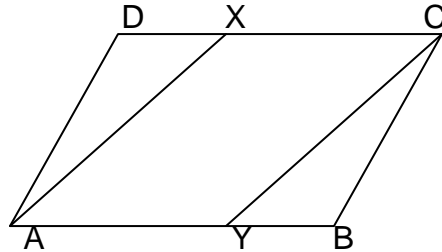


BHARATIYA VIDYA BHAVAN'S V. M. PUBLIC SCHOOL, VADODARA
CLASS – IX SUBJECT – MATHEMATICS CHAPTER – QUADRILATERALS

1. ABCD is a parallelogram and line segments AX and CY bisect angles A and C. Show that $AX \parallel YC$.

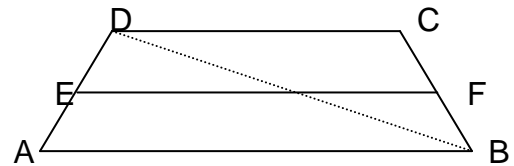


2. Show that the bisectors of angles of a parallelogram form a rectangle.
3. Diagonal AC of a parallelogram bisects $\angle A$. Show that
- (i) its bisects $\angle C$ also
 - (ii) ABCD is a rhombus:

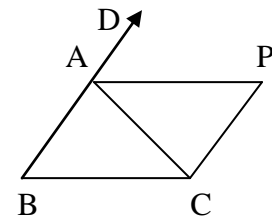
4. Show that diagonals of a rhombus are perpendicular to each other.

5. In the given figure, ABCD is a trapezium in which $AB \parallel DC$ and E is the mid point of AD. F is a point on BC such that $EF \parallel AB$.

Prove that $EF = \frac{1}{2}(AB + DC)$



6. In a rectangle ABCD if AC bisects angles A and C then prove that ABCD is a square.
7. Given $AB = AC$, $CP \parallel BA$ and AP is the bisector of $\angle CAD$.
 Prove that : i) $\angle PAC = \angle BCA$
 ii) ABCP is a parallelogram.

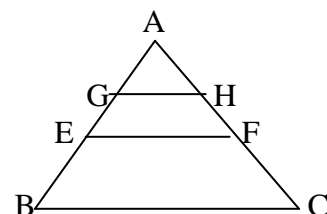


8. D, E and F are respectively the mid points of the sides QR, RP and PQ of a ΔPQR .
 Show that: i) $\Delta PFE \cong \Delta FQD$
 ii) QDEF is a parallelogram

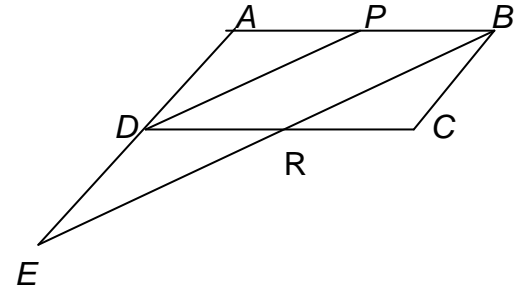
9. Prove that the line segments joining the mid points of the sides of a quadrilateral forms a parallelogram.

10. Given E, F, G, H are the mid points of sides AB, AC, AE and AF respectively.

Prove that: $GH \parallel BC$ and $GH = \frac{1}{4}BC$

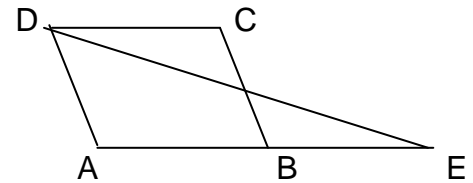


11. In a parallelogram $ABCD$, P is the mid point of AB . A line through B is drawn parallel to PD and meets AD (produced) at E and CD at R .
 Prove that: i) $PBRD$ is a parallelogram
 ii) $DP = 2EB$
 iii) R is the mid point of BE .

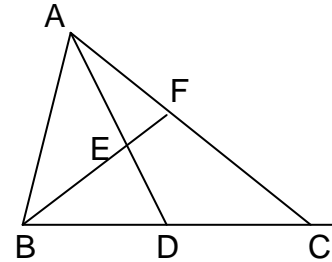


12. Given a triangle ABC right angled at B with $AB = 9\text{cm}$, $AC = 15\text{cm}$ and D and E the mid points of the sides AB and AC respectively, calculate the length of BC and area of the triangle ABC .

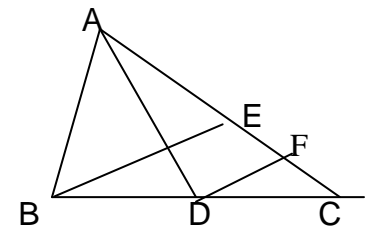
13. $ABCD$ is a parallelogram. AB is produced to E so that $BE = AB$. Prove that ED bisects BC .



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



15. In $\triangle ABC$, AD and BE are the medians through A and B and $BE \parallel DF$.
 Prove that $CF = \frac{1}{4} AC$.



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