CLASS-IX CHAPTER-8
QUADRILATERALS

Q1. A diagonal of a rectangle is inclined to one side of the rectangle at 25°. The acute angle between the diagonals will be? Ans 50°

Q2. ABCD is a rhombus such that $\angle ACB = 40°$. What will be $\angle ADB$? Ans 50°

Q3. In quadrilateral ABCD, $\angle A + \angle D = 180°$. What special name can be given to this quadrilateral?

Q4. Diagonals AC and BD of a quadrilateral ABCD intersect each other at O such that OA : OC = 3 : 2. Is ABCD a parallelogram? Why or why not?

Q5. What will be the figure obtained by joining the mid points of the sides of a rhombus? Rect.

Q6. Can all the four angles of a quadrilateral be obtuse angles? Give reason.

Q7. In $\triangle ABC$, AB = 5 cm, BC = 8 cm and CA = 7 cm. If D and E are resp. mid points of AB and BC, determine the length of DE. 3.5 cm

Q8. AX and CY are resp. the bisectors of the opposite angles A and C of a ||gm ABCD. Show that AX || CY. (Fig 1).

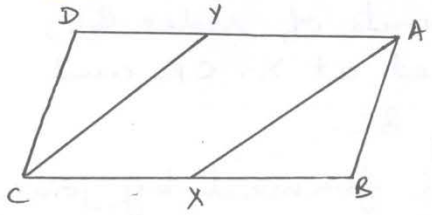

Fig 1

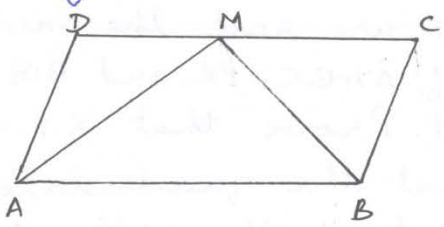

Fig 2

Q9. Three angles of a quadrilateral are equal. Is it a parallelogram?

Q10. Diagonals of a quadrilateral PQRS bisect each other. If $\angle P = 40°$, determine $\angle Q$. Ans 140°

Q11. ABCD is a ||gm and $\angle DAB = 60°$. If the bisectors of angles A and B meet at M on CD, prove that M is the mid point of CD. (Fig 2)

Q12. Prove that the line segment joining the mid points of the diagonals of a trapezium is parallel to the parallel sides and equal to half of their difference.

Q13. AD is the median of $\triangle ABC$. E is the mid point of AD. BE is produced to meet AC at F. Show that $AF = \frac{1}{3} AC$. [Hint: Draw $DG \parallel BF$].

Q14. Bisectors of $\angle B$ and $\angle D$ of quadrilateral ABCD meet CD and AB produced at P and Q resp. Prove that $\angle P + \angle Q = \frac{1}{2}(\angle ABC + \angle ADC)$. (Fig 3).

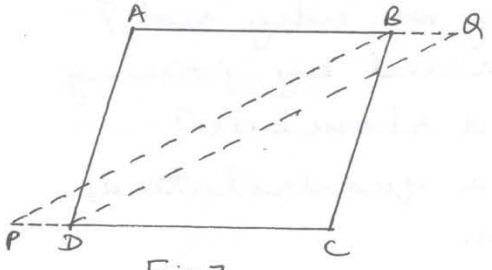

Fig 3

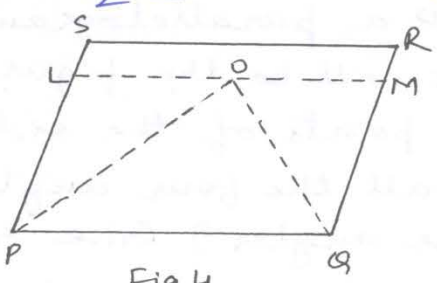

Fig 4

Q15. PQRS is a $\parallel gm$, PO and QO are resp. the angle bisectors of $\angle P$ and $\angle Q$. Line LOM is drawn parallel to PQ. Prove that (i) PL = QM (ii) LO = OM. (Fig 4)

Q16. ABCD is a $\parallel gm$. AB is produced to E so that BE = AB. Prove that ED bisects BC.

Q17. P, Q and R are resp. the mid points of sides BC, CA and AB of $\triangle ABC$. PR and BQ meet at X. CR and PQ meet at Y. Prove that $XY = \frac{1}{4} BC$.

Q18. Show that the quadrilateral formed by joining the mid-points of the sides of a square, is also square.

Q19. D, E and F are the mid points of the sides BC, CA and AB, resp. of an equilateral $\triangle ABC$. Show that $\triangle DEF$ is also an equilateral triangle.

Q20. P is the ~~for~~ mid-point of side BC of a $\parallel gm$ ABCD such that $\angle BAP = \angle DAP$. Prove that $AD = 2CD$. (Fig 5).

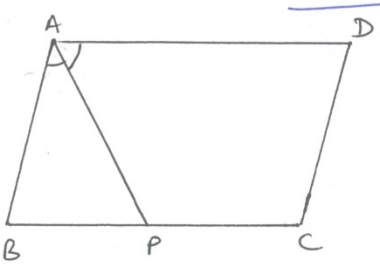

Fig 5

Q21. A square is inscribed in an isosceles right triangle so that the square and the triangle have one angle common. Show that the vertex of the square opposite the vertex of the common angle bisects the hypotenuse.

Q22. P, Q, R and S are resp. the mid-points of the sides AB, BC, CD and DA of quadrilateral ABCD in which AC = BD and AC ⊥ BD. Prove that PQRS is a square.

Q23. P is the mid-point of the side CD of a ||gm ABCD. A line through C parallel to PA intersects AB at Q and DA produced at R. Prove that DA = AR and CQ = QR.