9 Class Math Tuition Assignment

Assignment – 8

Assigned To = All 9 Class Students

Chapter = Quadrilaterals

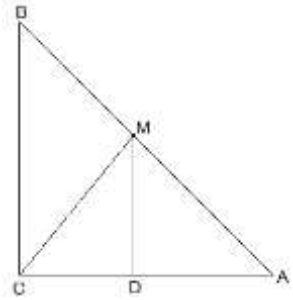
MM = 30

Q1. ABC is a triangle right angled at C. A line through the mid-point M of hypotenuse AB and parallel to BC intersects AC at D. Show that

(i) D is the mid-point of AC

(ii) MD ⊥ AC

(iii) CM = MA = ½ AB



Q2. In a parallelogram ABCD, E and F are the mid-points of sides AB and CD, respectively (see Fig. 8.31). Show that the line segments AF and EC trisect the diagonal BD.

9 Class Math Tuition Assignment

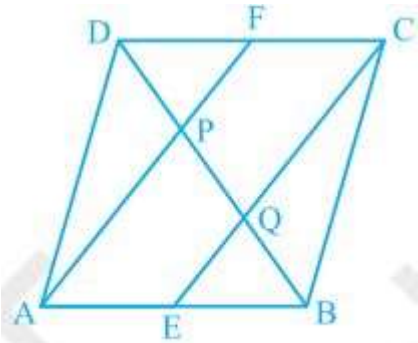
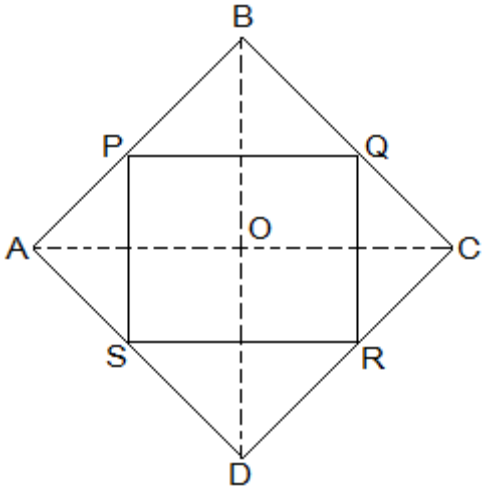


Fig. 8.31

Q3. **ABCD is a rhombus and P, Q, R and S are the mid-points of the sides AB, BC, CD and DA, respectively. Show that the quadrilateral PQRS is a rectangle.**



Q4. **ABCD is a trapezium in which AB || CD and AD = BC (see Fig. 8.23). Show that**

(i) ∠A = ∠B

(ii) ∠C = ∠D

(iii) ΔABC ≅ ΔBAD

(iv) diagonal AC = diagonal BD

[Hint: Extend AB and draw a line through C parallel to DA intersecting AB produced at E.]

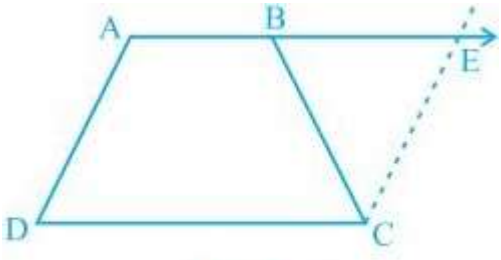


Fig. 8.23

9 Class Math Tuition Assignment

Q5. In ΔABC and ΔDEF, AB = DE, AB || DE, BC = EF and BC || EF. Vertices A, B and C are joined to vertices D, E and F, respectively (see Fig. 8.22).

Show that

(i) quadrilateral ABED is a parallelogram

(ii) quadrilateral BEFC is a parallelogram

(iii) AD || CF and AD = CF

(iv) quadrilateral ACFD is a parallelogram

(v) AC = DF

(vi) ΔABC ≅ ΔDEF.

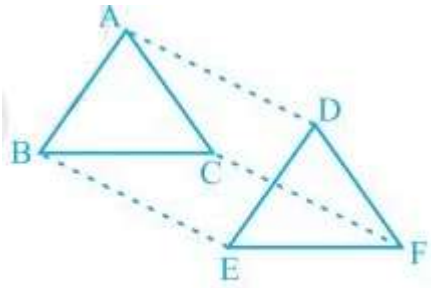


Fig. 8.22

Q6. In parallelogram ABCD, two points P and Q are taken on diagonal BD such that DP = BQ (see Fig. 8.20). Show that:

(i) ΔAPD ≅ ΔCQB

(ii) AP = CQ

(iii) ΔAQB ≅ ΔCPD

(iv) AQ = CP

(v) APCQ is a parallelogram

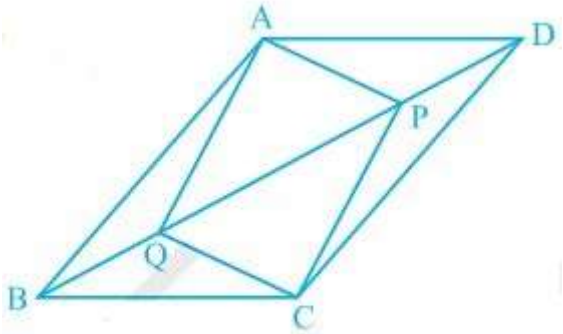


Fig. 8.20

Q7. Show that if the diagonals of a quadrilateral are equal and bisect each other at right angles, then it is a square.

9 Class Math Tuition Assignment

Q8. **In a quadrilateral ABCD, the angles A, B, C and D are in the ratio of 1:2:4:5. Find the measure of each angles of the quadrilateral.**

Q9. Show that the diagonals of a square are equal and bisect each other at right angles.

Q10. Show that if the diagonals of a quadrilateral bisect each other at right angles, then it is a rhombus.

9 Class Math Tuition Assignment