Half Term Examinations
Tuition 2022-23

Name = _____ **9 Class** **MM = 40**

Class = _____ **Mathematics** **Total Time = 2H**

Date =_____

Instructions

1. **Do not write anything in the question paper**
2. **Write appropriate details on question paper.**
3. **Use blue and black pen for the write in the answer.**
4. **All the Questions are Mandatory .**

Section 1 (10 Marks)

Q1. Visualise 3.765 on the number line, using successive magnification.

Q2. The taxi fare in a city is as follows: For the first kilometer, the fare is ₹8 and for the subsequent distance it is ₹5 per km. Taking the distance covered as x km and total fare as ₹ y, write a linear equation for this information, and draw its graph.

Q3. In Fig. 6.13, lines AB and CD intersect at O. If ∠AOC +∠BOE = 70° and ∠BOD = 40°, find ∠BOE and reflex ∠COE.

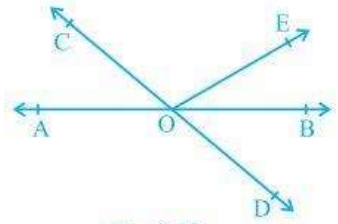

Fig. 6.13

Q4. The angles of quadrilateral are in the ratio 3 : 5 : 9 : 13. Find all the angles of the quadrilateral.

Q5. Difference between rational number and irrational number.

Section 2 (15 Marks)

Q1. Factorise each of the following:

(i) $8a^3+b^3+12a^2b+6ab^2$

(ii) $8a^3-b^3-12a^2b+6ab^2$

(iii) $27-125a^3-135a+225a^2$

Q2. In Fig. 6.44, the side QR of ΔPQR is produced to a point S. If the bisectors of ∠PQR and ∠PRS meet at point T, then prove that ∠QTR = ½ ∠QPR.

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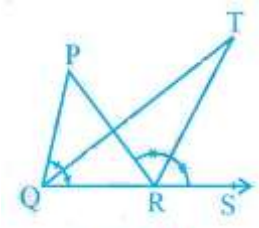

Fig. 6.44

Q3. In Fig. 6.40, ∠X = 62°, ∠XYZ = 54°. If YO and ZO are the bisectors of ∠XYZ and ∠XZY respectively of Δ XYZ, find ∠OZY and ∠YOZ.

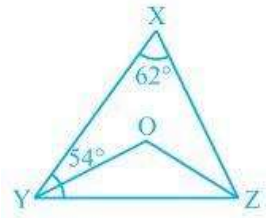

Fig. 6.40

Q4. 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.

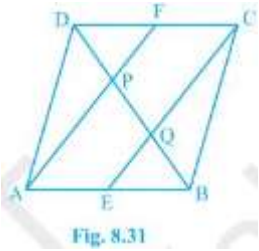

Fig. 8.31

Q5. Represent (√9.3) on the number line.

Section 3 (15 Marks)
(Do any three Questions)

Q1. 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.

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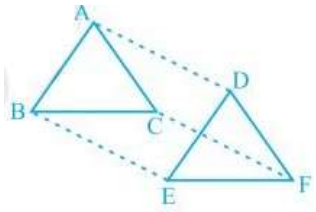
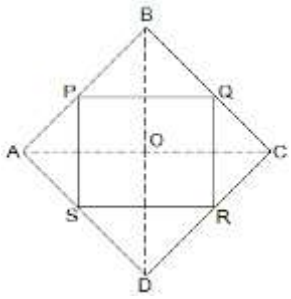


Fig. 8.22

Q2. Show that if the diagonals of a quadrilateral are equal and bisect each other at right angles, then it is a square.

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. In Fig. 6.43, if PQ ⊥ PS, PQ || SR, ∠SQR = 28° and ∠QRT = 65°, then find the values of x and y.

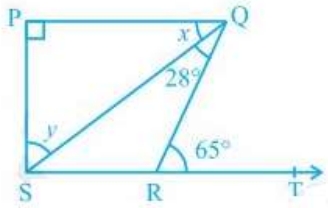


Fig. 6.43