FACULTY HIGHER SECONDARY SCHOOL

Half Year Sample Paper 2019-20

Subject- Mathematics

Class-IX

Maximum Mark: 80 Time: 3hrs

SECTION A (One Mark)

1. The decimal equivalent of $\frac{13}{400}$ is
   (a) 0.32 (b) 0.325 (c)0.0325 (d)0.032
2. Which of the following is an irrational number
   (a) √31 (b)√196 (c)√180 (d) 0.323223222…..
3. The value of 249^2-248^2
4. The point whose abscissa is -5 and lies on x-axis
   (a) (5,0) (b)(0,-5) (c) (0,5) (d) (-5,0)
5. The point at which the two co-ordinate axis meet is called
   (a) The origin (b) the quadrant (c) the ordinate (d) the abscissa
6. X=0 is the equation of
   (a) A line parallel to y-axis (b) a line parallel to x-axis (c) x-axis (d) y-axis
7. The exterior angles of a triangle is equal to the sum of two
   (a) Interior angles (b) alternate angles (c) exterior angles (d) interior opposite angles
8. Which of the following is not the solution of 3x+4y=12
   (a) (2,3) (b) (4,0) (c) (0,3) (d) (8,-3)
9. In ΔABC if AB=BC then
   (a)<B > <C (b) <A = <B (c) <B= <C (d) <A =<C
10. Which of the following is not a criterion for congruence triangles?

    (a) SAS (b) SSA (c) ASA (d) SSS

11. What will be the sum of two irrational numbers?
12. What will be the degree of the polynomial $4x^3+0x^4+2x^2+4$?
13. The zero of the polynomial p(x)= 5x-2 will be …….
14. If x>0, y<0 then the point (x,y) lies in which quadrant?
15. The weight of a table is four times the weight of a chair. Write an equation in two variables?
16. The number of planes passing through three non-collinear points is……..

17. Find the area of triangle with base 8cm height 10cm?

18. Find the mean of first 10 whole numbers.

19. Find the range of the data: 36,55,12,110,14,72,69,20.

20. Find the median of the data: 155,160,145,149,150,147,152,144,148.

SECTION B (Two Marks)

21. Represent √3 on number line.

22. Evaluate $(999)^2$ by using suitable identities.

23. For what value of p, the point (p,4 lies on the line 3x+y= 10

24. Does Euclid's fifth postulate imply the existence of parallel lines? Explain.

25. The two angles measuring ($30^{®}$-a) and ($125^{®}$+2a) are supplementary to each other. Find the value of a.

26. Prove that of the entire line segment that can be drawn to given line from a point, not laying on it the perpendicular line segment is the shortest.

SECTION C (Three Marks)

27. Express $0.6 + 0.\overline{7} + 0.\overline{47}$ in the from $\frac{p}{q}$ where p and q are integer and q≠o.

28. If x+1 is a factor of $ax^3+x^2-2x+4m-9$ find the value of m.

29. Plot the points A (1,3) B(1,-1) C(7,-1) D(7,3). Join the points (i) Name the figure so obtained (ii) Find the area of figure.

30. Give the geometric representation of 2 x+9=0 as an equation (i) in one variable (ii) in two variable

31. In the given figure lines AB and CD intersect at O. If <AOC + <BOE = $70^{®}$ and <BOD =$40^{®}$ find <BOE and Reflex COE

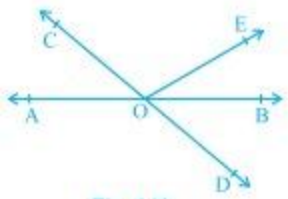
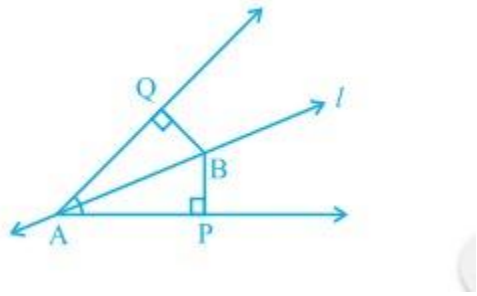


Fig. 6.13

32. Line l is the bisector of an angle <A and B is any point on l. BP and BQ are perpendicular from B to the arms <B. Show that (i) ΔAPB≡ΔAQB (ii) BP= BQ



33. Find the area of a triangle with perimeter 22cm one side 9cm and difference of other two side is 7cm.

34. The water tax bills(in rupees) of 30 houses in a locality are given below:

44	84	30	96	32	34	96	14	112	74
88	110	102	45	75	54	74	78	66	44
35	15	20	14	40	88	76	66	112	108

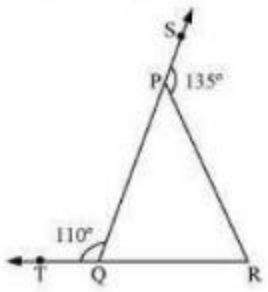
Make a group frequency table with the first class interval as 10-20.

SECTION D (Four Marks)

35. Prove that $\frac{1}{3+\sqrt{7}} + \frac{1}{\sqrt{7}+\sqrt{5}} + \frac{1}{\sqrt{5}+\sqrt{3}} + \frac{1}{\sqrt{3}+1} = 1$

36. Multiply $9x^2+ 25y^2+15xy+12x-20y+16$ by (3x-5y-4) by using suitable identities.

37. In the given figure side QP and RQ of ΔPQR are produced to points S and T respectively. If <SPR= $135^{®}$ and <PQT=$110^{®}$ find <PRQ.



38. In an isosceles Triangle ABC with AB= AC, the bisector of <B and <C intersect each other at O. Join A to O. Show that (i) OB= OC (II) AO bisect <A

39. Find the area of quadrilateral ABCD in which AB = 50cm, BC= 60cm, CD=30cm, DA=90cm and BD= 70cm.

40. The following tables give the distribution of total mark obtained by the students of different section of class VIII

Marks	60-70	70-80	80-90	90-100	100-110	110-120	120-130	Total
No. of students	2	3	5	16	14	13	7	60

Draw a histogram and a frequency polygon for the above data.