SAMPLE PAPER – 2009
CLASS – IX
SUBJECT – MATHEMATICS
(Geometry)

TIME – 3 Hrs M.M: 80

SECTION 'A' (1 Mark each)

1. Find the remainder when $4x^3 - 3x^2 + 2x - 4$ is divided by $x+2$.
2. *Is (2,1) a solution of 2x+5y=9?Why?*
3. Find the value of 'k', if $x - 1$ is a factor of $2x^2 + kx + \sqrt{2}$
4. In which quadrant do (-2,4)and(3,-1) lie?
5. Find the mode of 3 , 2, 1, 2, 3, 1, 3, 5, 4, 3, 2, 3
6. Define primary data.
7. Find the area of equilateral triangle with perimeter 30 cm
8. Diameter of the base of a cone is 10.5 cm and its slant height is 10 cm. Find its curved surface area
9. Find the total surface area of a hemisphere of radius 10 cm. (Use π = 3.14)
10. In a cricket match, a batswoman hits a boundary 6 times out of 30 balls she plays. Find the probability that she did not hit a boundary.

SECTION 'B' (2 marks each)

11. Find the area of a triangle two side of which are 18 cm and 10 cm and the perimeter is 42cm.

12. A rectangular sheet of paper 44cm x 18cm is rolled along its length and a cylinder is formed. Find volume of the cylinder.

OR

The circumference of the base of a cylindrical vessel is 132 cm and its height is 25 cm. How many litres of water can it hold? (1000 cm3 = 1*l*)

1 13. If $x + y + z = 0$, show that $x^3 + y^3 + z^3 = 3xyz$.

OR

Factorise : $8a^3 + b^3 + 12a^2 b + 6ab^2$

14. Plot the following points on a graph paper.(2,4),(-5,3),(-1,-3),(2,0).

15. Find four different solutions of the equation $2x + y = 6$.

SECTION 'C' (3 marks each)

16. Sides of a triangle are in the ratio of 12 : 17 : 25 and its perimeter is 540cm. Find its area.

17. The capacity of a closed cylindrical vessel of height 1 m is 15.4 litres. How many square metres of metal sheet would be needed to make it?

OR

The height and the slant height of a cone are 21 cm and 28 cm respectively. Find the volume of the cone.

18. Draw the graph of $x + y = 7$.

19. The blood groups of 30 students of Class IX are recorded as follows:

A, B, O, O, AB, O, A, O, B, A, O, B, A, O, O,
A, AB, O, A, A, O, O, AB, B, A, O, B, A, B, O.

Represent this data in the form of a frequency distribution table. Which is the most? common, and which is the rarest, blood group among these students?

20. The value of π up to 50 decimal places is given below:

3.14159265358979323846264338327950288419716939937510

Make a frequency distribution of the digits from 0 to 9 after the decimal point

21. 1500 families with 2 children were selected randomly, and the following data were Recorded

Number of girls in a family	**2**	**1**	**0**
Number of families	**475**	**814**	**211**

Compute the probability of a family, chosen at random, having
(i) 2 girls (ii) 1 girl (iii) No girl

22. Eleven bags of wheat flour, each marked 5 kg, actually contained the following weights
of flour (in kg):
4.97 5.05 5.08 5.03 5.00 5.06 5.08 4.98 5.04 5.07 5.00
Find the probability that any of these bags chosen at random contains more than 5 kg
of flour.

23 Find the mean salary of 60 workers of a factory from the following table:

Salary (in Rs)	3000	4000	5000	6000	7000	8000	9000	10000	Total
Number of workers	16	12	10	8	6	4	3	1	60

OR

The length of 40 leaves of a plant are measured correct to one millimetre, and the obtained data is represented in the following table:

Length (in mm)	**118 - 126**	**127 - 135**	**136 - 144**	**145 - 153**	**154 - 162**	**163 - 171**	**172 - 180**
Number of leaves	**3**	**5**	**9**	**12**	**5**	**4**	**2**

Draw a histogram to represent the given data

24. Yamini and Fatima, two students of Class IX of a school, together contributed Rs 100
towards the Prime Minister's Relief Fund to help the earthquake victims. Write a linear
equation which satisfies this data.

25. A right triangle ABC with sides 5 cm, 12 cm and 13 cm is revolved about the side 12 cm.
Find the volume of the solid so obtained.

SECTION 'D' (6 marks each)

26. A field is in the shape of a trapezium whose parallel sides are 25 m and 10 m. The non-
parallel sides are 14 m and 13 m. Find the area of the field

OR A park, in the shape of a quadrilateral ABCD, has ∠C = 90º, AB = 9 m, BC = 12 m,
CD = 5 m and AD = 8 m. How much area does it occupy?

27. **Draw a histogram and frequency polygon of the following.**

Marks	**0-10**	**10-20**	**20-30**	**30-40**	**40-50**	**50-60**
No: of students	**3**	**5**	**8**	**10**	**7**	**2**

28. Factorise: x^3-3x^2-9x-5

OR

Factorise:

$$x^3 + y^3 + z^3 - 3xyz = (1/2)(x + y + z)[(x - y)^2 + (y - z)^2 + (z - x)^2]$$

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

30. At a Ramzan Mela, a stall keeper in one of the food stalls has a large cylindrical vessel of
base radius 15 cm filled up to a height of 32 cm with orange juice. The juice is filled in small
cylindrical glasses (seeFig.) of radius 3 cm up to a height of 8 cm, and sold for Rs 3 each. How much money does the stall keeper receive by selling the juice completely?