SAMPLE PAPER – 2009
CLASS – IX
SUBJECT – MATHEMATICS

TIME – 3 Hrs M.M: 80

General Instructions:

(i) All questions are compulsory.

(ii) Write the question's number before attempting it.

(iii) The question paper contain four sections A, B, C and D. Section A consist of 10 questions of 1 mark each, Section B consist of 5 questions of 2 marks each, Section C consist of 10 questions of 4 marks each, Section D consist of 5 questions of 6 marks each.

(iv) Draw the figures wherever require.

Section – A

1. Which is smaller $\sqrt[3]{5}$ or $\sqrt[6]{10}$
2. Classify the following as rational and irrational number:
   a) $\sqrt{5}$ b) $1.\bar{3}$ c) 0.125879…. d) $4 + \sqrt{2}$
3. Show that 5 is zero of the polynomial $2x^3 - 7x^2 - 16x + 5$.
4. Write all zeros of the polynomial p(x) = $x(x-1)(x-2)$.
5. What are the names of the horizontal and vertical lines drawn to determine the position of a point in the Cartesian plane?
6. What are the abscissa and ordinate of the origin?
7. If (2, 5) is the solution of the equation 2x + 3y = m, find the value of m.
8. Write two solutions of x + y = 15.
9. Find the measure of an angle which is four times its complement.
10. In figure $l_1 \parallel l_2$ and $m_1 \parallel m_2$. If $\angle 1 = 115^\circ$, find $\angle 2$

Section – B

11. If $27^x = 9/3^x$, find the value of x.
12. Evaluate $(0.2)^3 - (0.3)^3 + (0.1)^3$.
13. Multiply $9x^2 + 25y^2 + 15xy + 12x - 20y + 16$ by $3x - 5y + 4$.
14. Divide $\sqrt{50}$ by $\sqrt{2}$.
15. Find the value of p(x) = $x^3 - 3x^2 + 5x + 7$ at
    a) x = 0 b) x = 1

Section – C

16. Show that x + 2 is a factor of the polynomial $x^3 + 3x^2 + 3x + 2$.

17. Examine whether the following number are rational or irrational

    a) $(\sqrt{2} - 2)^2$ b) $(2 - \sqrt{2})(2 + \sqrt{2})$

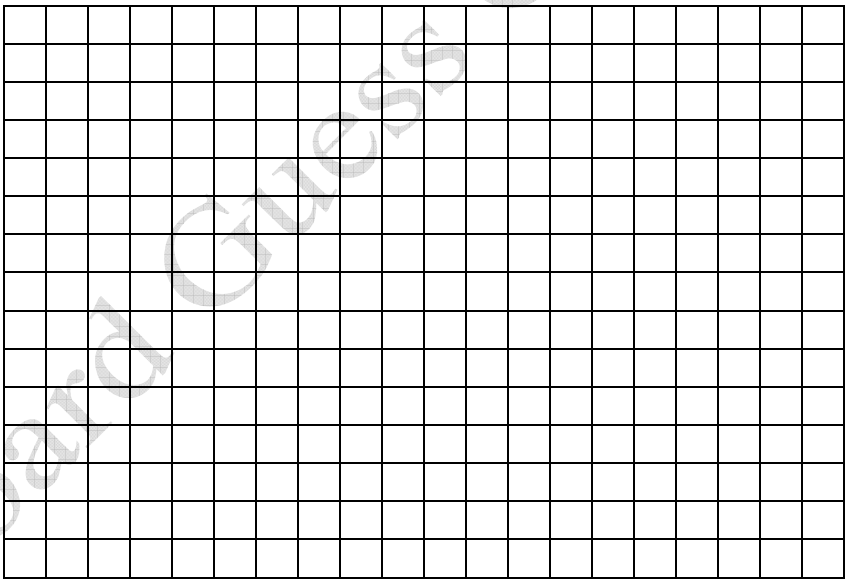
18. Find the value of $4x^2 + y^2 + 25z^2 + 4xy - 10yz - 20zx$ when x = 4, y = 3 and z = 2.

19. Find rational root of the polynomial $2x^3 + x^2 - 7x - 6$.

20. Using the remainder theorem, find the remainder when f(x) = $9x^3 - 3x^2 + x - 5$ is divided by g(x) = x - $\frac{2}{3}$.

21. What must be added to $x^3 - 3x^2 - 12x + 19$ so that the result is exactly divisible by $x^2 + x - 6$.

22. Write the co-ordinates of each of the following points marked in the graph



23. In figure, a is greater than b by one third of a right angle. Find the value of a and b.

24. Find the value of x and y, if $\angle P + \angle R = 180^\circ = \angle Q + \angle S$

25. The median of the following observations, average of 5th and 6th term, is 22:
    10,11, 14, 17, x + 5, x + 7, 32, 34, 35, 41.
    Find x.

Section – D

26. Factorize: a) $x^9 - y^9$ b) $x^6 - 7x^3 - 8$.

27. Factorize the polynomial $4x^3 + 20x^2 + 33x + 18$ given that 2x + 3 is a factor.
28. Represent $\sqrt{5.4}$ on the number line.
29. Express y in terms of x in the equation 2x – 3y = 12. Find the points where the line represented by this equation cuts x-axis and y-axis.

30. Prove that the sum of the angles of a triangle is 180°.
    Using the above theorem, find the measure of each angle of an equilateral triangle.