Holidays Home Work
Class - IX
Subject - Maths

1.Find five rational numbers between 1 and 2.
2. Find five rational numbers between 3/5 and 4/5.
3. Locate $\sqrt{3}$ on the number line.
4. Are the square roots of all positive integers irrational? If not, give an example of the square root of a number that is a rational number.
5. Find the decimal expansions of 10/3, 7/8 and 1/7.
6. Express $0.8\overline{76}$ in the form p/q, where p and q are integers and $q \neq 0$.
7. What can the maximum number of digits be in the repeating block of digits in the decimal expansion of 1/17? Perform the division to check your answer.
8. Find three different irrational numbers between the rational numbers 5/7 and 9/11.
9. Add $2\sqrt{2} + 5\sqrt{3}$ and $\sqrt{2} - 3\sqrt{3}$.
10. What is the product of a rational and an irrational number?
a) Always an integer
b) Always a rational number
c) Always an irrational number
d) Sometimes rational and sometimes irrational.
11. Give an example of a monomial and a binomial having degrees as 82 and 99, respectively.
12.Find the value of the polynomial $5x - 4x^2 + 3$ at $x = 2$ and $x = -1$.
13. Find the values of a and b so that $(2x^3 + ax^2 + x + b)$ has $(x + 2)$ and $(2x - 1)$ as factors.
14.Check whether $(7 + 3x)$ is a factor of $(3x^3 + 7x)$.
15. Factorise $x^2 - 1 - 2a - a^2$.
16. Find the value of $x^3 + y^3 + z^3 - 3xyz$ if $x^2 + y^2 + z^2 = 83$ and $x + y + z = 15$
17. Calculate the perimeter of a rectangle whose area is $25x^2 - 35x + 12$.
18. Compute the value of $9x^2 + 4y^2$ if $xy = 6$ and $3x + 2y = 12$.
19. Find the value of $x^3 + y^3 + z^3 - 3xyz$ if $x^2 + y^2 + z^2 = 83$ and $x + y + z = 15$
20. If $a + b + c = 15$ and $a^2 + b^2 + c^2 = 83$, find the value of $a^3 + b^3 + c^3 - 3abc$.
21. Without plotting the points indicate the quadrant in which they will lie, if

(i) the ordinate is 5 and abscissa is – 3

(ii) the abscissa is – 5 and ordinate is – 3

(iii) the abscissa is – 5 and ordinate is 3

(iv) the ordinate is 5 and abscissa is 3
22. Plot the points (x, y) given in the following table on the plane, choosing suitable units of distance on the axes.

x	-2	-1	0	1	3
y	8	7	-1.25	3	-1

23.Write the answer to each of the following questions:

(i) What is the name of the horizontal and the vertical lines drawn to determine the position of any point in the Cartesian plane?

(ii) What is the name of each part of the plane formed by these two lines?

(iii) Write the name of the point where these two lines intersect.

24.Points A (5, 3), B (–2, 3) and D (5, –4) are three vertices of a square ABCD. Plot these points on a graph paper and hence find the coordinates of the vertex C.

25. Write the coordinates of the vertices of a rectangle whose length and breadth are 5 and 3 units respectively, one vertex is at the origin, the longer side lies on the x-axis, and one of the vertices lies in the third quadrant.

26. Plot the points (x, y) given by the following table:

x	2	4	-3	-2
y	4	2	0	5

27. Plot the following points and write the name of the figure obtained by joining them in order:

P(– 3, 2), Q (– 7, – 3), R (6, – 3), S (2, 2)

28. Locate the points (5, 0), (0, 5), (2, 5), (5, 2), (–3, 5), (–3, –5), (5, –3) and (6, 1) in the Cartesian plane.

29. Express the number $0.2\overline{45}$ in the form of p/q where p and q are integer q=0

30. Give an example of a trinomial of degree 24 in the variable x.

31. Using suitable identity find the value of $(97)^2$

32. Find the zeros of the polynomial: $3x^2-x-4$.

33. Using long division method show that the polynomial $p(x) = x^3+1$ is divisible by $q(x)= x+1$

34. Give an example of monomial of degree 13 in the variable x.

35. Given example of binomial of degree 100 in the variable y.

*Activity-1 :. To represent $\sqrt{5}$ irrational number on the number line.

*Activity -2 : To verify the algebraic identity

$(a+b)^2= a^2+2ab+b^2$

*Project : Algebraic Identities