POLICE DAV PUBLIC SCHOOL LUDHIANA
CLASS IX/MATHEMATICS

1. Which of the following is irrational?
   - a. 0.14
   - b. $0.14\overline{16}$
   - c. $0.\overline{1416}$
   - d. 0.1014001400014.....

2. Which of the following can be represented as non-terminating, repeating decimals?
   - a. $\frac{39}{24}$
   - b. $\frac{3}{16}$
   - c. $\frac{3}{11}$
   - d. $\frac{137}{25}$

3. $23.\overline{43}$ when expressed in the form p/q (where p,q are integers and q≠0)
   - a. $\frac{2320}{99}$
   - b. $\frac{2343}{100}$
   - c. $\frac{2343}{999}$
   - d. $\frac{2320}{199}$

4. An irrational number between 2 and 2.5 is:
   - a. $\sqrt{11}$
   - b. $\sqrt{5}$
   - c. $\sqrt{22.5}$
   - d. $\sqrt{12.5}$

5. A bag contains 50 coins and each coin is marked from 51 to 100. One coin is picked at random. The probability that the number on the coin is not a prime number, is:
   - a. $\frac{1}{5}$
   - b. $\frac{3}{5}$
   - c. $\frac{2}{5}$
   - d. $\frac{4}{5}$

6. A coin is tossed 1000 times, if the probability of getting a tail is $\frac{3}{8}$, how many times head is obtained?
   - a. 525
   - b. 375
   - c. 625
   - d. 725

7. Which of the following cannot be the probability of an event?
   - a. $\frac{1}{3}$
   - b. $\frac{3}{5}$
   - c. $\frac{5}{3}$
   - d. 1

8. Three coins are tossed simultaneously, The probability of getting atmost one head is:
   - a. $\frac{1}{3}$
   - b. $\frac{3}{8}$
   - c. $\frac{2}{8}$
   - d. $\frac{4}{8}$

9. The percentage of marks obtained by a student in a test are given below:

Unit test	I	II	III	IV	V
Marks	58	74	76	62	85

   Find the probability that the student gets:

   - a. Atleast 60% marks.
   - b. Marks between 70% and 80%.
   - c. 75% or above.
   - d. Less than 65%.

10. There were 200 telephone numbers in a telephone directory. The frequency distribution of their unit pace digit is as follows:

Digits	0	1	2	3	4	5	6	7	8	9
Frequency	22	26	22	22	20	10	14	28	16	20

    A number is chosen at random, find the probability that chosen digit be:
    - a. 6
    - b. A non zero multiple of 3
    - c. Non zero Even number
    - d. Odd number.

11. Answer the following:
    - a. In which quadrants abscissa and ordinate have same signs?
    - b. Marks a point on y-axis at a distance of four units in negative direction of y-axis.
    - c. Find the coordinates of the point:
        - i. Which lies on both axes.
        - ii. Whose abscissa is (- 4) and lies on x-axis.
        - iii. Whose ordinate is 5 and lies on y-axis.
        - iv. Point lies on y-axis at a distance of 2 units from the x-axis.

12. Find three ordered pairs of (x, y) such that x + 3y = 6 and plot them. How many such ordered pairs can be found and plotted?

13. Three vertices of a rectangle are (-1, 1), (5, 1) and (5, 3). Plot these points and find the coordinates of the fourth vertex.

14. Write the coordinates of the vertices of a square whose each side is 5 units, one vertex at (2, 1) and all the vertices lie in same quadrant.

15. The length of perpendiculars PM and PN drawn from a point P, on x-axis and y-axis are 3 and 2 units respectively. Find the coordinates of points P,M, and N.

16. Plot three points A, B and C which have same abscissa 4 but lie in I and IV quadrants and on x-axis respectively. Also plot mirror image of A in y-axis.

17. The parking charges of a car in a parking lot is Rs. 30 for the first two hours and Rs. 10 for subsequent hours. Taking total parking time to be x hours and total charges as Rs. Y. Write a linear equation to express the statement and draw its graph.

18. The total monthly expenditure of a household consists of a fixed expenditure on house rent as Rs. 500 and the expenditure on rice which is available at Rs. 50 per kg. Write a linear assuming the consumption of rice to be x kg per month and the total expenditure of household per month as Rs y . Draw the graph.

19. A lending library has a fixed charge for first three days and an additional charge for each day there after. Neetu paid Rs. 21 for a book kept for five days. Write a linear equation which satisfies this data. Draw the graph for the same.

20. Shade the triangle formed by the graphs of 2x – y = 4 , x + y = 2 and the y-axis. Write the coordinates of vertices.

21. Find the coordinates where the linear equation 4x - $\frac{2}{3}$y = 7 meets at y-axis.

22. The polynomials $ax^3 + 3x^2 - 3$ and $2x^3 - 5x + a$ when divided by x – 4 leaves the remainders R_1 and R_2 respectively. Find the value of a if $R_1 - R_2 = 20$.

23. Let A and B be the remainders when the polynomials $x^3 + 2x^2 - 5ax - 7$ and $x^3 + ax^2 - 12x + 6$ are divided by x + 1 and x – 2 respectively. If 2A + B = 6, find the value of a.

24. Factorize: a. $x^3 - x^2 - 14x + 24$ b. $x^3 - 2x^2 - 29x - 42$.

25. Factorize: a. $125 - 2\sqrt{2}\ m^3 + 3\sqrt{3}\ n^3 + 15\sqrt{6}$ mn.   b. $(p - q)^3 + (q - r)^3 + (r - p)^3$

26. Factorize $27 - 64\ a^3 - 108\ a + 144\ a^2$.

27. If the bisectors of the angles of a triangle ABC meet at O, then ∠BOC = 90^0 + $\frac{1}{2}$ ∠A.

28. ABC is an isosceles triangle with AB = AC, and AE is bisector of exterior angle CAD. Prove that AE∥BC.

ACTIVITY

- Locate integral points on circular graph of radius 5cm.
- Draw graph of y = x + 3. Show that it will be a straight line inclined at angle of 45^0 with positive direction of x axis. Draw a robot using geometrical shapes on graph paper.

PROJECT

(any one)

❖ Prepare a project on
- EUCLID'S GEOMETRY.
- MATHEMATICS IN DAILY LIFE