

MATHS WORKSHEET

**INSTRUCTIONS-** Q1-Q3 should be done in a separate folder. Q4-Q28 should be done in a separate thin notebook.

1) Find out and write history of Pie ( $\pi$ ).

2) Find out and write about any Indian Mathematician.

3) Make and Solve any ten Mathematical Puzzle from any Newspaper, Magazine.

4) The decimal representation of a rational number is

- a) Always terminating
- b) Either terminating or repeating
- c) Either terminating or non repeating
- d) Neither terminating nor repeating

5) Factorise :  $2y^3 + y^2 - 2y - 1$  .

6) Show that  $0.2353535\dots = 0.23\overline{5}$  can be expressed in the form  $\frac{p}{q}$ ,  
where p and q are integers and  $q \neq 0$

7) See fig. , and write the following : Do it from ex- 3.2

- a) The coordinates of B.
- b) The coordinates of C.
- c) The points identified by the coordinates (-3,-5).
- d) The coordinates of the point M.
- e) The abscissa of the point D.
- f) The ordinates of the point H.

8) Verify that :

$$x^3 + y^3 + z^3 - 3xyz = \frac{1}{2}(x+y+z) [ (x-y)^2 + (y-z)^2 + (z-x)^2 ]$$

9) The taxi fare in a city is as follows: For the first kilometer, the fare is

₹8 and for the subsequent distance it is ₹5 per km. Taking the distance covered as X km and total fare as ₹y , write linear equation for this information and draw its graph.

10) Find one rational and one irrational number between 1.501 and 1.502.

11). Find two irrational numbers between 0.2301 and 0.2424....

12) Rationalise the denominator  $16 / (\sqrt{41}-5)$

13) If  $x = 3 + \sqrt{8}$ , show that  $(x^2 + 1) / x^2 = 34$ .

14) Find the value of a and b if  $(3 + \sqrt{7}) / (3 - \sqrt{7}) = a + b\sqrt{7}$

15) Simplify: (i)  $6^{\frac{3}{5}} \times 6^{\frac{3}{5}}$  (ii)  $3\sqrt{4} \times 3\sqrt{16}$  (iii)  $81^{\frac{3}{4}}$  (iv)  $4\sqrt{1250} / 4\sqrt{2}$

14) For what value of  $a$ ,  $(x-3)$  is a factor of  $x^3 + x^2 - 17x + a$ ?

15) Find the zero of the polynomial  $p(x) = 2x + 5$ .

16) Find the remainder when  $P(x) = x^3 + 3x^2 + x + 1$  is divided by  $g(x) = 5 + 2x$ .

17) Find the value of  $x^6 + 1/x^6$ , if  $x + 1/x = 3$ . 18) Find the value of  $a^3 + b^3 - 3ab$  if  $a + b = -1$ .

19) Factorise:  $x^2 - y^2/100$ . 20) Factorise:  $(3m^2 - 2m)(6 - 3m^2 + 2m) - 5$ .

21) The perimeter of any equilateral triangle is 60 m. The area is?

22) The sides of the triangle are 56 cm, 60 cm and 52 cm long. Then the area of the triangle is?

23) The area of the equilateral triangle with sides  $2\sqrt{3}$  cm is?

24) The perimeter of a given triangle is 30 cm. The sides are in the ratio 1: 3: 2, then its smallest side is?

25) Find the total cost of levelling the ground in the form of a triangle with sides of 16m, 12m and 20m at Rs. 4 per sq. meter.

26) Plot the following points and check whether they are collinear or not:

(i) (1, 3), (-1, -1), (-2, -3)

(ii) (1, 1), (2, -3), (-1, -2)

(iii) (0, 0), (2, 2), (5, 5)

27) 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

28) 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

29) A parallelogram has sides 30 m and 40 m and one of its diagonals is 20m long. Find the area of the parallelogram

30)The sides of a quadrilateral ABCD are 4cm, 8cm, 12cm, and 16cm respectively. Find its area.

31) A rhombus-shaped sheet with perimeter 50cm and one diagonal 10 cm, is painted on both sides at the rate of Rs. 7 per m<sup>2</sup>. Find the cost of painting

32)From a point in the interior of an equilateral triangle, perpendicular are drawn on the three sides. The lengths of the perpendicular are 12cm, 14cm, and 8cm. Find the area of the triangle.