

# VISWABHARATI - GUDIVADA

## WORK SHEET-1

**Chapters: Real Numbers, sets, polynomials & Pair of linear equations**

**Class: X**

**Time: 1 ½ Hr**

**Subject: Mathematics**

**Max.Marks: 35 M**

**Name** \_\_\_\_\_ **Class/Sec:** \_\_\_\_\_ **Roll No:** \_\_\_\_\_

**I. Answer all the questions. Each Question carries half mark.**

**30 × ½ = 15**

1. If  $r = 0$  then. Then what is relationship between  $a, b$  in  $a = bq + r$  of Euclid's division Lemma.
2. What is Last digit of  $5^{100} \times 6^{100}$
3. Which of the following statements is wrong  
 Statement-I:- The product of a non-zero rational and irrational numbers is irrational  
 Statement-II:- Fundamental theorem of arithmetic is applicable only for prime numbers  
 A) I is wrong      B) II is wrong      C) Both are wrong      D) Both are true
4. Find the value of  $\log_{0.01} 10$
5. What is  $p/q$  form of 0.55
6. Write decimal expansion of  $\frac{7218}{3^2 \times 5^2}$
7. Find the value of  $5^{2+\log_5 2}$
8. Write set of odd digits in the Ramanujan number.
9. If  $A = \{x: x \text{ is a composite number } x < 10\}$   
 $B = \{x: x \text{ is an odd number } x < 10\}$   
 Then find  $n(A \cap B)$

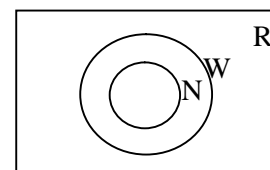
10. Mention type of the sets given below

$A = \{x: x \text{ is natural number, } x < 1\}$

$B = \{x: x \text{ is odd number divisible by } 2\}$

11. Observe venn diagram and identify which relation is wrong

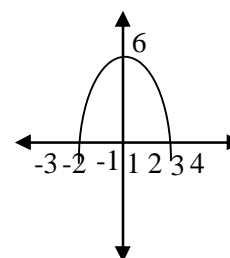
- i)  $N \subset R$                                       ii)  $W \subset R$   
 iii)  $R \subset N$                                       iv)  $N \subset W$



12. If  $A = \{1, 2, 3, 4\}$  then write a set which is not a proper subset to the given set.
13. If  $A$  and  $B$  are disjoint sets. How can you find  $n(A \cup B)$
14. If  $A = \{x: x \text{ is a letter in the word DOCTOR}\}$   
 $B = \{x: x \text{ is a letter in the word ACTOR}\}$

Then find  $A \Delta B$

15. What is the degree of zero polynomial
16. If the zero of a linear polynomial is  $-\frac{5}{3}$ . Then write the polynomial.
17. Identify the zeros of Quadratic polynomial from adjacent graph



18. How many zeros we can write for the polynomial  $x^4 - 16$ .
19. Match the correct relation between zeroes and Co-efficient of a cubic polynomial  
 $p(x) = ax^3 + bx^2 + cx + d$  where  $a \neq 0$  and  $\alpha, \beta, \gamma$  are zeroes of  $p(x)$

- |   |          |  |
|---|----------|--|
| i) $\alpha\beta + \beta\gamma + \gamma\alpha$ | [      ] | p) $-\frac{b}{a}$                                |
| ii) $\alpha\beta\gamma$                       | [      ] | q) $-\frac{d}{a}$                                |
| iii) $\alpha + \beta + \gamma$                | [      ] | r) $-\frac{c}{a}$                                |
|   |          | s) $\frac{c}{a}$                                 |
| A) i → r    ii → p    iii → q                 |          | B)    i → s            ii → q            iii → p |
| C) i → p    ii → q    iii → r                 |          | D)    i → s            ii → r            iii → s |

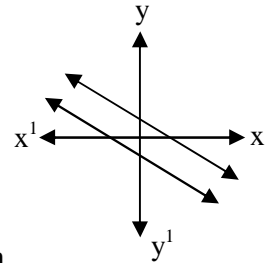
20. Find sum of zeroes of a polynomial if  $p(x) = 2x^2 - 7x + 8$
21. Write a quadratic polynomial whose sum and product of zeroes is  $-2$  and  $3$
22. In Division Algorithm if  $\deg p(x) = \deg q(x)$  then what can you say about degree of  $g(x)$ .
23. What is the condition for an equation  $ax + by + c = 0$  to become a linear equation
24. Convert the following information as linear equations.

“5 books and 7 pens together cost Rs. 79 where as 7 books and 5 pens together cost Rs. 77.”

25. Reduce the following equations in to linear equations.

$$\frac{5}{x+y} - \frac{2}{x-y} = -1 \quad \text{and} \quad \frac{15}{x+y} + \frac{7}{x-y} = 10$$

26. Observe the following graph and identify number of solution for pair of linear equations



27. Observe the following equations and write their common solution

$$\sqrt{2}x + \sqrt{3}y = 0, \quad \sqrt{3}x - \sqrt{8}y = 0$$

28. The equation  $3x + 7y + 5 = 0$  has

- A) no solution      B) Unique solution      C) two solution      D) Infinitely many solution

29. We have a linear equation  $5x + y - 3 = 0$  write another linear equation in two variables such that the geometrical representation of the pair so formed is intersecting line.

30.  $5x - 3y = 11$  and  $-10x + 6y = -22$  are pair of linear equations. Then which of the following gives number of solutions.

- A) Unique solution B) two solutions      C) 3 solutions      D) Infinite solutions

**II. Answer the Questions. Each Question carries one mark.**

**20×1 = 20**

- Write the following rational numbers as decimal form and find out of block of repeating digits in the quotient  
a)  $\frac{1}{3}$                                       b)  $\frac{2}{7}$
- Show that  $3\sqrt{2}$  is an irrational.
- Write  $\log_2 60$  in terms of x, y where  $\log_2 3 = x$  and  $\log_2 5 = y$ .
- Is  $\log 5$  rational or irrational? Justify your answer.
- Can you find HCF of 0.012 and 0.12
- Write set builder form of the following sets  
A = {0, 7, 26, 63, 124}  
B = { 2, 6, 12, 20}
- If A = {x: x is a letter in the word MATHEMATICS }  
B = {x: x is a letter in the word PHYSICS }  
Show these two sets in venn diagram.
- In a class of 30 students 16 members likes Telugu and 25 members likes English. Then how many members likes both subjects if is each student like atleast one of these subject.
- “An empty set is finite set” Justify
- If A = {All equilateral triangles }  
B = {All acute angle triangles }  
Then which is correct ACB or BCA.
- Write  $n^{\text{th}}$  degree polynomial in one variable with required condition.
- Draw the graph of a Quadratic polynomial whose zeroes are equal.
- Find the zeroes of the polynomial  $x^2 - 3$  and verify the relationship between the zeroes and coefficients
- If one zero of a quadratic polynomial  $p(x) = 2x^2 - kx + 5$  is 5 then find ‘k’ and another zero of polynomial.
- Give examples of polynomial p(x), g(x) q(x) and r(x) which satisfy the division algorithm and  $\deg q(x) = \deg r(x)$ .
- Is dependent pair of linear equations always consistent why or why not
- Two angles are complementary. The larger angle is  $3^\circ$  less than twice of the measure of smaller angle. Find the measure of each angle.
- Fill the empty boxes given below.

Condition	Graphical Representation	Algebraic interpretation
$\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$		Consistent, equations unique solution
	Parallel lines	Inconsistent equation number solution
	Coincident lines	

- For what value of ‘k’ the pair of linear equations  $3x + 4y + 2 = 0$  and  $9x + 12y + k = 0$  represent coincident lines.
- Draw the rough graph of linear equation  $2x + y - 5 = 0$