

**APS KALUCHAK**

**SUMMER VACATION HOLIDAY'S HOMEWORK**

**CLASS-X-MATH**

**A. SUBJECT ENRICHMENT ACTIVITIES (Do it on Lab Manual Mathematics)**

1. To draw the graph of a quadratic polynomial of  $x^2 - 3x - 4$ .
2. To find the conditions for consistency and inconsistency for system of linear equations in two variables by graphical method.

**B. CONCEPT MAP**

1. REAL NUMBERS, POLYNOMIALS, LINEAR EQUATIONS IN TWO VARIABLES.

**C. WORKSHEET RELATED TO TOPIC (Do it on math notebook)**

**WORKSHEET**

- Q1. State whether the number  $\sqrt{5 + 3\sqrt{3}}(\sqrt{5 + 5\sqrt{3}})$  rational or irrational justify.
- Q2. Express 107 in the form of  $4q + 3$  for some positive integer.
- Q3. Use Euclid's division algorithm to find the HCF of 1288 and 575.
- Q4. Check whether  $7^n$  can end with the digit 0, where n is any natural number.
- Q5. Find the HCF and LCM of 6, 72 and 120 using the prime factorization method.
- Q6. Show that  $\sqrt{7}$  is an irrational number.
- Q7. Show that  $\sqrt{3} - \sqrt{5}$  is an irrational number.
- Q8. Find the LCM & HCF of 26 and 91 and verify the product rule.
- Q10. Prove that  $5 + \sqrt{5}$  is not a rational number.
- Q11. Find the largest positive integer that will divide 122, 150 and 115 leaving remainder 5, 7 and 11 respectively.
- Q12. Using prime factorization method, find the HCF and LCM of 72, 126 and 168.
- Q13. Find the zeros of polynomial of  $2x^2 + 8x + 8$
- Q14. Write a quadratic polynomial sum of whose zeroes is  $2\sqrt{3}$  and their product is 2.
- Q15. Prove that the polynomial  $z^3 + 4z + 7$  has no integral zero.
- Q16. Show that -1, -5 and -6 are the zeros of  $y^3 + 12y^2 + 41y + 30$ .
- Q17. Find the zeros of  $2x^2 - 8x + 6$  and verify the relation between zero and its coefficients.

- Q18. If the zeros of  $x^3 - 3x^2 + x + 1$  are  $a-b, a, a+b$ , find  $a$  and  $b$ .
- Q19. If  $\alpha$  and  $\beta$  are zeros of  $x^2 + 4x + 3$ , from the polynomial whose zeros are  $1+\beta$  and  $1+\alpha$
- Q20. Twice the product of the zeroes of  $23x^2 - 26x + 161$  is  $14p$ . find  $p$ .
- Q21. Solve graphically:  $3x - 5y = 19$ ,  $3y - 7x + 1 = 0$
- Q22. Solve graphically:  $4x + 3y = 9$ ,  $3x - 4y = 13$
- Q23. Solve graphically:  $x - y = -1$ ,  $3x + 2y - 12 = 0$
- Q24. Solve graphically:  $2x - 3y = 1$ ,  $3x - 4y = 1$
- Q25. Draw the graph of the equation  $4x - y - 8 = 0$  and  $2x - 3y + 6 = 0$  Also determine the vertices of triangle formed by the lines and the  $x$ -axis.
- Q26. Solve  $x$  and  $y$ :  $4x + 9y = 5$  and  $3x - 5y = 39$
- Q27. Solve  $x$  and  $y$ :  $ax + by = a + b$  and  $x - y = a - b$
- Q28. Solve  $x$  and  $y$ :  $2x + 3y = 11$  and  $2x - 4y = -24$  and hence find  $m$  for which  $y = mx + 5$
- Q29. Solve  $x$  and  $y$ :  $4x + 7y = 25$  and  $21x - 13y = 21$
- Q30. Solve  $x$  and  $y$ :  $x + y = a + b$  and  $ax - by = a^2 - b^2$
- Q31. The denominator of fraction is greater than its numerator by 11. If 8 added to both its numerator and denominator, it becomes  $\frac{3}{4}$ . Find the fraction.
- Q32. A rectangle is twice as long as it is wide. If it is bordered by strip 2m wide, its area is increased by  $160\text{m}^2$ . what are its dimensions?
- Q33. The sum of the digits of a two digit number is 10. If the order of the digits is reversed the number is decreased by 54, find the number.
- Q34. Ritu can row downstream 20km in 2 hours and upstream 4 km in 2 hours. Find her speed of rowing in still water and the speed of the current.
- Q35. A takes 3 hours more than B to walk a distance of 30 km. But, if A doubles his pace he is ahead of B by 1 hour and 30 min. find their speeds of walking.
- Q36. A father is six times as old as his son. Four years hence he will be four times as old as his son. find their present ages.

- Q37. 2 tables and 3 chairs together cost Rs 2000 whereas 3 tables and 2 chairs together cost Rs2500 Find the total cost of 1 table and 5 chairs.
- Q38. Meena went to bank to draw Rs 2000. She asked the cashier to give her Rs50 and Rs 100 notes only.Meena got 25 notes in all. Find how many notes of each type she received.
- Q39. In a triangle, the sum of two angles is equal to the third.If the difference between them is  $50^\circ$ , find the angles.
- Q40. Ramesh travels 760km to his home, partly by train and partly by car. He takes 8 hours if he travels 160km by train and rest by car.He takes 12 minutes more if he travels 240km by train and rest by car .Find the speed of the train and car.
- Q41. For which value of p does the pairs of equations has unique solution  $4x + py = 8 = 0$  and  $2x + 2y + 2 = 0$
- Q42. If  $4a + 3b = 65$  and  $a + 2b = 35$  ,find the value of  $a/b$  .Also find a and b
- Q43. A man rowing at the rate of 5 km an hour in still water takes thrice as much times in going 40 km up the river as in going 40km down.Find the rate at which the river flows.
- Q44. Solve for x and y :  $217x + 131y = 913$  and  $131x + 217y = 827$
- Q45. Solve for x and y:  $8x - 9y = 6xy$  and  $10x + 6y = 19xy$

**NOTE: complete your work neat and clean and submission on time.**