



NATIONAL EDUCATION SOCIETY FOR TRIBAL STUDENTS
(An Autonomous Organization Under Ministry Of Tribal Affairs, Govt. Of India)

EKALAVYA MODEL RESIDENTIAL SCHOOL TAVAGA

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CLASS 10th SUMMER VACATION HOLIDAY HOMEWORK
SUBJECT : MATHEMATICS

1. Prove that:

a) $\sqrt{2}$ is an irrational number.

b) $\sqrt{3}$ is an irrational number.

2. Write 5 examples each of: Linear polynomial, Quadratic polynomial, Cubic polynomial

3. Find the HCF and LCM of 56 and 72 using prime factorization.

4. For the quadratic polynomial $x^2 - 5x + 6$, find its zeros and verify the relationship between the zeros and the coefficients.

5. Verify that: $\text{HCF} \times \text{LCM} = \text{Product of the two numbers}$ for (48, 84).

6. Find the prime factorisation of 360 and express it as a product of primes.

7. Prove that $3 + 2\sqrt{5}$ is irrational.

8. Prove that $7\sqrt{2}$ is irrational.

9. Write the degree and number of terms in the following polynomials:

(a) $4x^3 - 3x^2 + 2x - 7$

(b) $x^2 + 2x$

(c) 7

10. Find the zero(s) of the following polynomials:

(a) $x^2 - 7x + 10$

(b) $x^2 + 2x - 15$

(c) $x^2 - 9$

11. If α and β are the zeros of the polynomial $x^2 - 3x + 2$ find: (a) $\alpha + \beta$. (b) $\alpha\beta$

Verify the relationship with coefficients.

12. Form a quadratic polynomial whose sum and product of zeroes are: a) 4, 1.

(b) -3, 2

13. If one zero of the polynomial $x^2 + kx + 6$ is 2, find the value of k and the other zero.

14. Form a pair of linear equations in two variables using the following information and solve it graphically: Five years ago, Sheela was twice as old as Tina. Ten years later Sheela's age will be ten years more than Tina's age. Find their present ages. What was the age of Sheela when Tina was born?

15. Madhu went to a bank to withdraw 10000. He asked the cashier to give her 100 and 200 notes only. Madhu got 60 notes in all. Find how many notes of 100 and 200 she received.

16. Solve previous year questions from each chapter (Chapter 1 to chapter 3) from previous 5 years CBSE question papers.

B. Read and practice yourself chapter 3, 4, 5, 6 during summer holiday.

C. Write any four projects out of given topic in A4 size paper elaborately with colourful work

Topic list :

1. To develop Heron's formulae for area of a triangle.
2. Story of π .
3. Development of Number Systems with their needs.
4. Chronology of Indian Mathematicians with their contributions.
5. Chronological development of solution of a quadratic equations.
6. Development of Formula for the area of a cyclic quadrilateral.
7. Pythagoras Theorem-Proofs other than given in the present textbook.
8. Extensions of Pythagoras Theorem.
9. With rectangle of given perimeter finding the one with a maximum area and with rectangle of given area, finding
The one with least perimeter.
10. Knowledge and classification of solid figures with respect to surface areas and volumes.



SUBJECT TEACHER
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PRINCIPAL