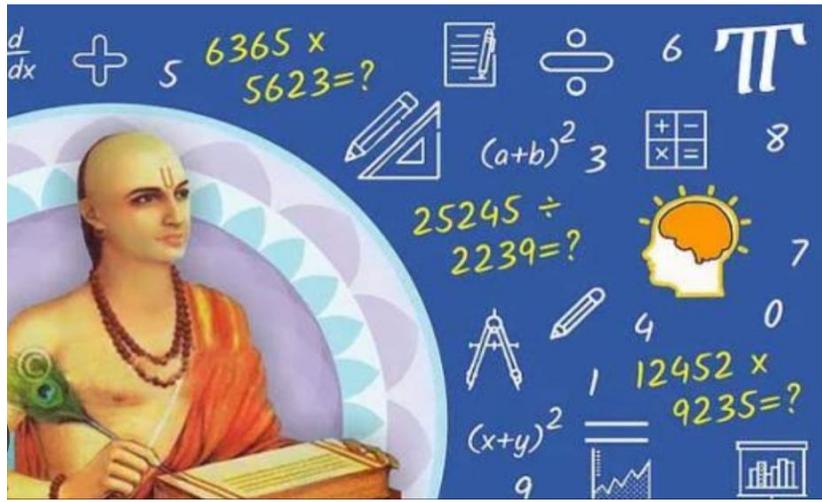




CERTIFICATE COURSE
ON
VEDIC MATHEMATICS



Department Of Mathematics

Shyampur Siddheswari Mahavidyalaya

Academic Year : 2025-26

Course Co-ordinators : Dr. A.K. Maiti

Mrs. R. Maiti

Details

Lecture per week: 3 lectures

Duration: 32 hours

Instructors: Dr. A.K. Maiti

Mr. S. Mondal

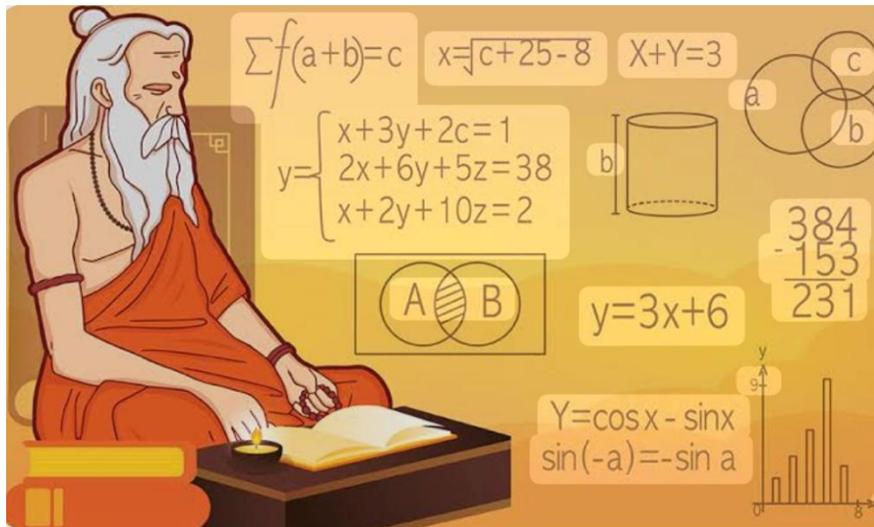
Mrs. R. Maiti

Commencement of Course: Last week of August, 2025

Evaluation: Continuous Assessment

Duration of Final Exam.: 1 hour

Introduction



Vedic Mathematics is an ancient system of Indian mathematics that offers a set of techniques or sutras (aphorisms) to solve mathematical problems in a fast and efficient manner. It was rediscovered in the early 20th century by Jagadguru Shankaracharya Bharati Krishna Tirthaji Maharaj, who derived these methods from the Vedas, particularly from the Atharva Veda.

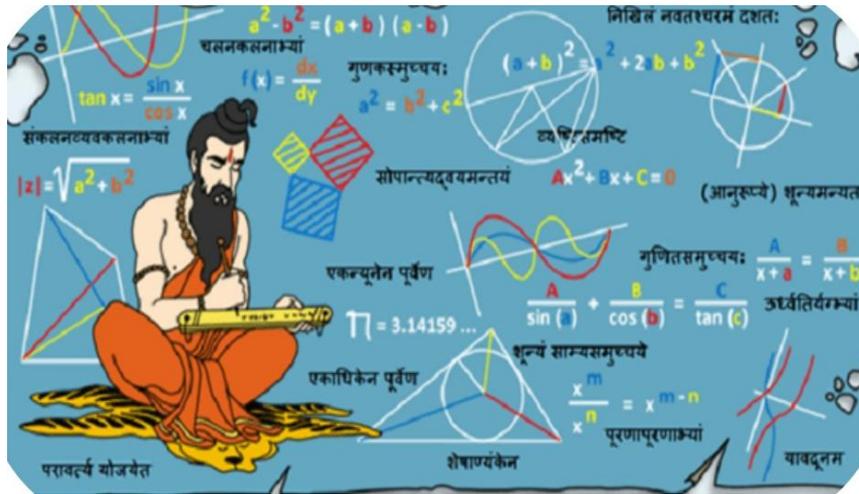
The system comprises 16 sutras and 13 sub-sutras, each providing a specific principle or shortcut for solving various types of mathematical problems, ranging from basic arithmetic to complex algebra, calculus, and trigonometry.

It not only enhances students' computational abilities but also improves their confidence and interest in mathematics. Vedic methods are especially useful for competitive exams, where speed and accuracy are critical.

Key Features:

- Suitable for all age groups.
- Reduces dependency on calculators.
- Encourages logical thinking and pattern recognition.
- Vedic Mathematics is not just a collection of tricks; it is a complete and coherent system that makes mathematics more engaging, intuitive and enjoyable.

Why Vedic Mathematics?



Vedic Mathematics is not just a set of tricks — it's a powerful, logical, and time-tested system that transforms the way we approach numbers and calculations. Here's why learning Vedic Mathematics is beneficial:

1) Faster Calculations:

Vedic methods enable solving complex problems in seconds. Students can perform large multiplications, divisions, or square roots mentally — often faster than using a calculator!

2) Boosts Confidence in Mathematics:

By simplifying calculations and reducing fear, Vedic Maths builds confidence, especially in students who find math challenging.

3) Improves Accuracy:

The step-by-step mental techniques reduce the chances of making mistakes and improve precision.

4) Enhances Concentration and Memory:

Since most techniques are mental, students naturally develop better focus, memory, and visualization skills.

5) Helpful in Competitive Exams:

Exams like SAT, GRE, GMAT, UPSC, Banking, and other aptitude tests require speed and accuracy — Vedic methods give students an edge.

6) Applicable Across All Levels:

Whether you're a primary student learning tables or a high schooler dealing with algebra, Vedic Mathematics offers techniques at every level.

7) Promotes Creative and Flexible Thinking:

There's often more than one Vedic method to solve a problem. This flexibility encourages creativity and multiple approaches to a single problem.

Course Outcomes

Course Objectives of Vedic Mathematics:

By the end of this course, learners will be able to:

1) Understand the Origin and Philosophy:

Gain knowledge about the historical roots and spiritual foundations of Vedic Mathematics, particularly its basis in the Vedas.

2) Familiarize with the 16 Sutras and 13 Sub-sutras:

Learn the core sutras (formulas) and sub-sutras that form the foundation of Vedic mathematical techniques.

3) Apply Vedic Techniques for Fast Calculation:

Perform addition, subtraction, multiplication, division, squares, cubes, square roots, and cube roots using Vedic methods.

4) Enhance Mental Arithmetic Skills:

Strengthen the ability to solve complex problems mentally with speed and accuracy.

5) Solve Algebraic and Polynomial Expressions:

Use Vedic methods to solve algebraic equations, factorization, and simultaneous equations efficiently.

6) Develop Logical and Analytical Thinking:

Improve problem-solving strategies and mathematical reasoning through Vedic approaches.

7) Reduce Dependence on Conventional Methods and Calculators:

Cultivate habits of quick calculation without the use of electronic devices or lengthy procedures.

8) Build a Strong Foundation for Competitive Exams:

Prepare for entrance tests and competitive exams where time management and speed are essential.

9) Promote Interest and Enjoyment in Mathematics:

Transform the learning experience into an enjoyable, engaging, and confidence-building journey.

10) Revive and Appreciate Indian Mathematical Heritage:

Course Learning Outcomes of Vedic Mathematics:

After successful completion of the course, the learner will be able to:

1) Explain the origin, structure, and philosophy of Vedic Mathematics:

➤ Demonstrate an understanding of the Vedic sutras and their historical significance.

2) Apply Vedic sutras for rapid numerical calculations:

➤ Use appropriate Vedic techniques to perform addition, subtraction, multiplication, and division quickly and accurately.

3) Solve algebraic expressions and equations using Vedic methods:

➤ Apply sutras to factorize polynomials and solve linear and quadratic equations.

4) Perform advanced computations like square roots, cube roots, and decimal operations:

➤ Use specific Vedic techniques to handle roots and decimal problems efficiently.

5) Improve mental arithmetic and logical thinking skills:

➤ Develop the ability to perform mental calculations and cultivate a habit of logical analysis.

6) Evaluate mathematical problems with multiple solution paths:

➤ Demonstrate flexible thinking by choosing the most efficient Vedic method for a given problem.

7) Use Vedic Mathematics techniques in competitive exam preparation:

➤ Apply learned methods to solve aptitude questions with speed and accuracy.

8) Appreciate the relevance of ancient Indian knowledge systems in modern mathematics:

➤ Show awareness of the cultural and intellectual value of Vedic Mathematics.

Course Contents

Unit 1: Introduction to Vedic Mathematics

- Origin and history of Vedic Mathematics
- Contributions of Jagadguru Bharati Krishna Tirthaji
- Overview of the 16 Sutras and 13 Sub-sutras
- Importance and applications of Vedic Mathematics
- Benefits over conventional methods

Unit 2: Basic Arithmetic Using Vedic Methods

- Ekadhikena Purvena (By one more than the previous one)
- Nikhilam Navatashcaramam Dashatah (All from 9 and the last from 10)
- Addition and subtraction using vertical and crosswise methods
- Multiplication of numbers close to base 10, 100, 1000, etc.
- Quick division tricks using Vedic sutras

Unit 3: Advanced Multiplication and Division Techniques

- Urdhva-Tiryagbhyam Sutra (Vertically and Crosswise)
- Multiplication of any two-digit and three-digit numbers
- Special cases: numbers with 9s, 1s, and near bases
- Long division made easy using Paravartya Yojayet
- Digital sums and checking answers using Vedic techniques.

Unit 4: Algebra Using Vedic Sutras

- Basic algebraic identities using Vedic methods
- Factorization using the sunyam samyasamuccaye sutra
- Solving linear and quadratic equations
- Simultaneous equations using Vedic techniques
- Squares and cubes of binomials.

Unit 5: Applications, Mental Math, and Competitive Exams

- Square roots and cube roots by direct methods
- Decimal and recurring decimal conversions
- Mental calculation tricks for aptitude tests

References

- 1) "Vedic Mathematics" – Jagadguru Swami Bharati Krishna Tirthaji Maharaj.
- 2) "Vedic Mathematics Made Easy" – Dhaval Bathia
- 3) "The Power of Vedic Maths- Atul Gupta.
- 4) "High Speed Vedic Mathematics" – Rajesh Kumar Thakur.
- 5) "Speed Mathematics Using Vedic Sutras" – Dr. A.P. Nicholas, Kenneth Williams & James Glover.

Grades will be assigned according to the following scale:

Marks(%)	Below 45	45-54	55-64	65-79	80-89	90-100
Grade	F	D	C	B	A	A⁺