

vedic maths tricks for multiplication

Vedic maths tricks for multiplication are highly efficient techniques derived from ancient Indian mathematics that simplify complex arithmetic calculations. These methods not only save time but also enhance mental maths ability, making multiplication easier and faster. In this article, we will explore various Vedic maths tricks specifically designed for multiplication, their principles, and practical applications.

Understanding Vedic Mathematics

Vedic Mathematics consists of 16 sutras (aphorisms) and 13 sub-sutras that form the foundation of this ancient mathematical system. The beauty of Vedic maths lies in its simplicity and versatility, allowing individuals to approach mathematical problems from different angles. The multiplication techniques are particularly useful for students, teachers, and professionals who frequently work with numbers.

Benefits of Vedic Maths Tricks for Multiplication

Before diving into specific tricks, it's essential to understand the benefits of using Vedic maths for multiplication:

- **Speed:** Vedic tricks can significantly reduce the time taken to perform multiplication, making it ideal for competitive exams.
- **Accuracy:** These methods help minimize calculation errors, enhancing overall accuracy.
- **Mental Agility:** Regular practice improves mental agility, allowing for quicker calculations without the need for paper and pencil.
- **Confidence:** Mastering these techniques boosts confidence in handling complex mathematical problems.

Popular Vedic Maths Tricks for Multiplication

Here, we will delve into some popular Vedic maths tricks for multiplication, detailing how to use them effectively.

1. The Nikhilam Sutra (All from 9 and the last from 10)

The Nikhilam Sutra is particularly useful for multiplying numbers close to powers of ten. Here's how to apply it:

- Step 1: Identify the base (power of 10) closest to the numbers you are multiplying.
- Step 2: Subtract each number from the base to find their deviations.
- Step 3: Cross-add the deviations.
- Step 4: Multiply the deviations together to get the final product.

Example:

Multiply 98 and 97.

- Base: 100
- Deviations: $100 - 98 = 2$; $100 - 97 = 3$
- Cross-add: $98 - 3 = 95$ (or $97 - 2 = 95$)
- Multiply deviations: $2 \times 3 = 6$
- Final product: 9506

Thus, $98 \times 97 = 9506$.

2. The Urdhva-Tiryagbhyam Sutra (Vertically and Crosswise)

This sutra is applicable for multiplying any two-digit numbers and can be extended to larger numbers as well.

Example:

Multiply 23 and 45.

- Step 1: Multiply the digits in the units place: $3 \times 5 = 15$. Write down 5 and carry over 1.
- Step 2: Cross-multiply ($2 \times 5 + 3 \times 4$): $10 + 12 = 22$. Add the carryover: $22 + 1 = 23$. Write down 3 and carry over 2.
- Step 3: Multiply the digits in the tens place: $2 \times 4 = 8$. Add the carryover: $8 + 2 = 10$.

Final result: $23 \times 45 = 1035$.

3. The Ekadhikena Purvena Sutra (One More than the Previous)

This technique is especially handy for multiplying numbers of the form $(n-1)$ and $(n+1)$ (e.g., 19 and 21).

Example:

Multiply 19 and 21.

- Step 1: Subtract 1 from 19 (18) and add 1 to 21 (22).

- Step 2: Multiply the results: $18 \times 22 = (20 - 1)(20 + 1) = 400 - 1 = 399$.

Final result: $19 \times 21 = 399$.

4. The Anurupyena Sutra (Proportionately)

This sutra is used for multiplying numbers that are proportionate or have a common factor.

Example:

Multiply 24 and 36.

- Step 1: Find the least common multiple (LCM) or a common factor. Here, we can use 12.

- Step 2: Rewrite the numbers: $24 = 12 \times 2$, $36 = 12 \times 3$.

- Step 3: Multiply the coefficients: $2 \times 3 = 6$.

- Step 4: Multiply by the square of the common factor: $6 \times (12^2) = 6 \times 144 = 864$.

Final result: $24 \times 36 = 864$.

Practice Problems

To master Vedic maths tricks for multiplication, practice is key. Here are some problems to try:

1. Multiply 96 and 94 using the Nikhilam Sutra.
2. Multiply 34 and 56 using the Urdhva-Tiryagbhyam Sutra.
3. Multiply 29 and 31 using the Ekadhikena Purvena Sutra.
4. Multiply 48 and 72 using the Anurupyena Sutra.

Conclusion

Vedic maths tricks for multiplication are not only fascinating but also immensely useful in daily life. By incorporating these techniques into your arithmetic practice, you can enhance your mathematical skills and significantly reduce calculation time. With continued practice, these tricks can become second nature, making complex multiplications as simple as pie. Start practicing today and unlock the potential of Vedic mathematics in your life!

Frequently Asked Questions

What is Vedic Maths and how does it relate to multiplication?

Vedic Maths is a system of mathematics that originated in ancient India, based on sixteen sutras (aphorisms). It offers various techniques for simplifying arithmetic operations, including multiplication, making calculations faster and easier.

What is the 'Vertically and Crosswise' technique in Vedic Maths?

The 'Vertically and Crosswise' technique is a popular Vedic Maths method for multiplying two-digit numbers. It involves multiplying the digits in a crosswise fashion and adding them together, making it quicker than traditional multiplication.

Can Vedic Maths tricks be applied to multiplying larger numbers?

Yes, Vedic Maths tricks can be extended to larger numbers by breaking them down into smaller components and applying techniques like 'Vertically and Crosswise' or 'Nikhilam' (all from 9 and the last from 10) to simplify calculations.

How can Vedic Maths help students in competitive exams?

Vedic Maths can significantly improve speed and accuracy in competitive exams by providing shortcuts for calculations. Mastering these tricks allows students to solve problems quickly, saving valuable time during tests.

What is the 'Nikhilam' method in Vedic Maths for multiplication?

The 'Nikhilam' method, or 'all from 9 and the last from 10,' is used for multiplying numbers close to a base (like 10, 100, etc.). It involves subtracting each number from the base and using these differences to find the product, simplifying the multiplication process.

Are there any resources available for learning Vedic Maths multiplication tricks?

Yes, there are numerous resources available, including books, online courses, and video tutorials that focus on Vedic Maths multiplication tricks. Many educational websites and platforms also offer interactive lessons and practice exercises.

Is Vedic Maths only useful for multiplication, or can it be applied to other operations?

While Vedic Maths is particularly known for its multiplication techniques, it can also be applied to

other operations such as addition, subtraction, and division, providing efficient methods for various mathematical tasks.

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