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## A brief into Vedic mathematics-its origin, features and sutras

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### Abstract

The so called Vedic mathematics is a situation in point. The "Vedic Mathematics" is called so due to its starting point from Vedas. To be more explicit, it has started from "Atharva Vedas" the fourth Veda. "Atharva Veda" manages the branches like Engineering, Mathematics, model, Medicine, and any remaining sciences with which we are today mindful of. The Sanskrit word Veda is gotten from the root Vid, which means to know unbounded. The word Veda covers all Veda-Sakhas known to mankind. It's been acknowledged from the start that there's no proof of the items in the guide being of Vedic origin; the Foreword to the book by the General Editor, Dr. A.S. Agrawal, and an account of the genesis of the effort created by Manjula Trivedi, a disciple of the Swamiji, make this clear even before one gets to the content of the publication.

**Keywords:** Vedic, mathematics, sutra, medicine, atharva

### 1. Introduction

The Sanskrit word "Veda" signifies information. The word Veda abstractly implies the wellspring head and illimitable information store. Hence, the Veda contains all information that is fundamental for humanity. Veda is the first word for Vedic. The word Veda additionally alludes to the sacrosanct old Hindu writing which is separated into four sections: the Rig-Veda, the Yajur Veda, the Sam Veda and the Atharva Veda. The Atharva Veda is some of the time called the "Veda of enchanted formulae". It is the essential wellspring of data about Vedic culture. Subjects canvassed in the Vedas incorporate Grammar, Astronomy, Architecture, Psychology, Philosophy, Economics, Medicine and Archery. "Vedic Mathematics" is a generally excellent strategy or technique for computations dependent on basic guideline and standards. By this method, any mathematical issue whether it is number-crunching or variable based math or calculation or geometrical can be addressed. Vedic mathematics is an old procedure that comprises of sixteen sutras and thirteen sub sutras. It improves on the major math activities. It likewise settles arithmetical ideas like concurrent condition, quadratic conditions, factorization of cubic conditions and so on more viably than the conventional methodology. Vedic Mathematics can accelerate mathematical estimations like Arithmetic, Algebra, Trigonometry and Geometry. It lessens an opportunity to tackle a mathematical issue and lifts the understudy certainty. Vedic Mathematics acquaints the superb applications with Arithmetical calculations, hypothesis of numbers, compound duplications, logarithmic tasks, factorizations, basic quadratic and higher request conditions, synchronous quadratic conditions, halfway portions, calculus, figuring out, cubing, square root, 3D shape root and organize math and so forth "Vedic Mathematics" is an arrangement of thinking and mathematical working dependent on old Indian lessons called Veda. It is quick, effective and simple to learn and utilize. Vedic mathematics, which works on number-crunching and arithmetical tasks, has progressively discovered acknowledgment the world over. Specialists propose that it very well may be a helpful device for the individuals who need to tackle mathematical issues quicker constantly. Vedic Mathematics gives answer in one line where as ordinary technique requires a few stages.

Huge sums have been invested both by the Government and many private agencies to allow for this Vedic mathematics, while genuine Vedic scientific studies continue to be ignored. Individuals, particularly kids, are actually urged to study as well as spread the contents of the book, mainly on the baseless idea of their being out of the Vedas. With missionary zeal several devotees of this particular purpose have striven to take the idea within the world; not surprisingly, they've also met with a few good results in the West, not unlike several of the gurus as well as yogis peddling the own variations of theirs of Indian philosophy.

Many individuals can also be interested in research in the brand new Vedic mathematics.

The mindset discovered in this could barely be said to be ideal in objective and scientific inquiry or maybe pursuit of knowledge, but possibly one shouldn't grudge it in someone from an entirely different milieu, if the outcome is actually positive. One will have believed that with all of the dedication and grit the writer would've come up with no less than a couple of interesting things which may be due to the Vedas, with evidence that is good. This might have created a valuable contribution to the understanding of ours of the heritage of ours. Rather, all said as well as completed there's just the author's certificate that people were enjoyably astonished and intensely gratified to discover that extremely although mathematical issues could be readily and easily resolved with the aid of these ultra-easy Vedic sutras (or maybe mathematical aphorisms) found in the Parishishta (the appendix portion) of the Atharva Veda in a couple of very simple things and also by techniques which could be diligently described as mere 'mental arithmetic' (paragraph nine in the preface). The passing reference to the Atharva Veda is actually all that's at any time said by way of source material for the contents. The sutras, moreover, which appeared later, spread in the publication, are actually brief phrases of only approximately 2 to 4 words in Sanskrit, like Ekadhikena Purvena or maybe Anurupye Shunyam Anyat. (There are actually sixteen of them and in addition there is actually thirteen of what exactly are referred to as sub sutras, similar in nature to the sutras.)

## 2. Origin of Vedic mathematics

His blessedness Jagadguru Sankaracarya Sri Bharati Krsna Tirthaji Maharaj of Govardhana Matha, Puri (1884-1960) had composed VEDIC MATHEMATICS or 'Sixteen Simple Mathematical Formulae from the Vedas'. It is the consequence of the creator, who during the course of eight years of profoundly thought mental undertaking. He intuitively pictured a portion of the basic mathematical

certainties and standards. The Vedas are notable as four in number Rg, Yajur, Sama and Atharya, yet they have additionally the four Upavedas and the six Vedangas all of which type of heavenly information.

The following are the four Upavedas: Veda

1. Upaveda Rgveda
2. Ayurveda Samaveda
3. Gandharvaveda Yajurveda
4. Dhanurveda Atharvaveda
5. Sthapatyaveda

In this rundown the Upaveda of Sthapatya contains and every visual craftsmanship. Swamiji normally respected mathematics estimations and calculations to fall under this classification. Swamiji could draw in enormous crowds. He could represent a few hours at a stretch in Sanskrit and English.

We are told in his introduction by Swami Sankaracharya that he thought about to wrapup every one of the assorted parts of mathematics like geometry, stargazing, Statistics and so forth, with these essential Sutras. That thorough utilization of the sutras couldn't be left by him. The antiquated arrangement of mathematics is Vedic Mathematics. As per Sri Bharati Krsna Tirthaji, Vedic Mathematics depends on sixteen Sutras. With the assistance of Vedic mathematics any one can take care of 'troublesome' issues or immense aggregates absent a lot of trouble. The issues can be determined by intellectually is one of the simplicities of Vedic mathematics. By utilizing Vedic mathematics we enjoy many benefits. One can utilize or find their own strategy to take care of their issues. There are numerous strategies to take care of issues. One can choose any strategy as per his/her comfort. This assists the understudies with being more imaginative.

## 3. Sixteen sutras and their corollaries of vedic mathematics

Table

Sl. No	Sutras	Sub sutras or Corollaries
1.	Ekādhikena Pūrvena (also a corollary)	Ānurūpyena
2.	Nikhilam Navataścaramam Daśatah	Sisyate Śesamjnah
3.	Ūrdhva - tiryagbhyām	Ādyamādyenanty amantyena
4.	Parāvartya Yojayet	Kevalaih Saptakam Gunṛat
5.	Sūnyam Samyasamuccaye	Vestanam
6.	(Ānurūpye) Sūnyamanyat	Yāvadūnam Tāvadūnam
7.	Sankalana - vyavakalanābhyām	Yāvadūnam Tāvadūnikṛtya Vargaṅca Yojayet
8.	Puranāpuranābhyām	Antyayordasake' pi
9.	Calanākalanābhyām	Antyayoreva
10.	Yāvadūnam	Samuccayagunitah
11.	Vyastisamastih	Lopansthāpanabhyām
12.	Śesānyakena Caramena	Vilokanam
13.	Sopantyadvayamantyam	Gunitasamuccayah Samuccayagunitah
14.	Ekanyūnena Pūrvena	
15.	Gunitasamuccayah	
16.	Gunitasamuccayah	

- The First Sutra: Ekādhikena Pūrvena says "By one more than the past one".
- The Second Sutra: Nikhilam Navataścaramam Daśatah implies: all from 9 and the last from 10".
- The Third Sutra: Ūrdhva Tiryagbhyām is material to all instances of augmentation and will likewise be

discovered exceptionally valuable later on in the division of an enormous number by another huge number. The actual equation is extremely short and succinct, comprising of just one compound word and signifies "in an upward direction and transversely."

- The Fourth Sutra: Parāvartya Yojayet signifies "Render

- and apply."
- The Fifth Sutra: Sūnyam Samyasamuccaye says "when the Samuccaya is the very that Samuccaya is zero for example it ought to be likened to nothing." Samuccaya right off the bat implies a term which happens as a typical factor in every one of the terms concerned; also implies the result of free terms; thirdly implies the amount of the denominators of two divisions having same mathematical numerator; fourthly means mix or aggregate; fifth sort of utilization conceivable with quadratic conditions; 6th importance – same sense yet in an alternate application it proves to be useful to settle more earnestly conditions compared to nothing. By then of time, from the Vedas, the six shades of implications have been seen by the Jagadguru Sankaracarya when such kinds of conditions had not been created on the planet.
  - The Seventh Sutra: Sankalana Vyavakalanābhyām measure and the Adyamadya rule together in the methodology took on is one of substitute obliteration of the greatest and the most minimal forces by a reasonable duplication of the coefficients and the expansion or deduction of the products.
  - The Eight Sutra: Puranāpuranābhyām signifies "by the finishing or not fruition" of the square or the shape or forward power and so forth However, when the actual presence of polynomials, quadratic conditions and so on was not characterized it is a supernatural occurrence Jagadguru could examine of the finish of squares (quadratic) cubic and forward degree condition.
  - The Ninth Sutra: Calanākalanābhyām implies differential calculus as per Jagadguru Sankaracharya.
  - The Tenth Sutra: Yāvadūnam utilized for cubing.
  - The Eleventh Sutra: Vyastisamastih Sutra helps one how to utilize the normal or accurate center binomial for separating the biquadratic into a 24 basic quadratic by the simple gadget of shared scratch-offs of the odd forces.
  - The Twelfth Sutra: Śesānyankena Caramena signifies "The leftovers by the last digit".
  - The Thirteen Sutra Sopantyadvayamantyam signifies "a definitive and double the penultimate".
  - The Fourteenth Sutra: Ekanyūnena Pūrvana is the opposite of the Ekadhika Sutra. It really relates and accommodates increases where the multiplier the digits comprises altogether of nines.
  - The Fifteenth Sutra: Gunitasamuccayah rule for example the standard previously disclosed concerning the Sc of the item being equivalent to the result of the Sc of the elements.
  - The Sixteen Sutra: Gunakasmuccayah implies the result of the amount of the coefficients in the components is equivalent to the amount of the coefficients in the item.
  - Maybe the most striking element of the Vedic framework is its lucidness. Rather than a hotch-potch of irrelevant strategies the entire framework is wonderfully interrelated and brought together: the overall increase strategy, for instance, is effortlessly turned around to permit one line divisions and the straightforward squaring technique can be switched to give one-line square roots. Furthermore, these are largely handily perceived. This binding together quality

is extremely fulfilling, it makes mathematics simple and pleasant and empowers development.

- The First Corollary emerging out of the Nikhilam Sutra peruses in English "whatever the degree of its insufficiency diminish it even further to that very degree, and furthermore set up the square of that inadequacy". This clearly manages the squaring of the numbers.
- The Second Corollary pertinent just to an extraordinary case under the main culmination for example the squaring of numbers finishing in 5 and other related numbers.
- The Third Corollary to the Nikhilam sutra which identifies with an extremely extraordinary kind of increase and which isn't as often as possible in demand somewhere else yet is frequently needed in mathematical space science and so on It identifies with and accommodates duplications where the multiplier digits comprises altogether of nines.

#### 4. Salient features of Vedic mathematics

Vedic Mathematics is turning out to be progressively mainstream as an ever increasing number of individuals are acquainted with the wonderfully brought together and simple computation techniques. Some intriguing notable highlights with regards to the actual expressions of HH Jagadguru Śri Bhārati Kṛṣṇa Tīrthaji Mahāraj from the introduction of his book on —Vedic Mathematics are worth focusing on: —Vedas, the most seasoned Religious' sacred writings of the entire world, guarantee to manage all parts of realizing whether spritual or fleeting and to give the sincere searcher after information every one of the imperative guidelines and direction in full detail and on logically – nay – Mathematically – exact lines in them all thus on. The very word Veda has the derivational significance, for example the wellspring head and illimitable storage facility of all information. This deduction, basically, implies, indicates and infers that the Vedas ought to contain inside themselves all information required by humankind. That is, it indicates and suggests that our old Indian Vedic legend ought to be throughout finished, consummate and have the option to illuminate all issue which any hopeful searcher after information can try to be edified on.

1. The Sūtra-s (sayings) apply to pretty much every part of Mathematics.
2. The Sūtra-s are straightforward, simple to apply and simple to recall and the entire work can be honestly summed up in single word as 'Mental'.
3. Even as respects complex issues including a decent number of Mathematical activities (continuously or even at the same time to be played out), the time taken by the Vedic strategy will be a third, a fourth, a 10th, or even a lot more modest part of the time needed by current (for example current) strategies.
4. And in some vital and striking cases, totals requiring 30, 50, 100 or significantly more various and cumbersome 'ventures' of working (as per the current techniques) can be replied in a solitary and straightforward advance of work by the Vedic strategy. Offspring (of just 10 or 12 years old) only glance at the totals composed on the chalkboard and promptly holler and pass on the appropriate responses. This is on the grounds that, indeed, every digit naturally yields its archetype and its replacement. Also, the kids have simply to continue

- throwing off (or rolling out) the digits consistently (advances or in reverse) by simple mental math (without requiring pen or pencil, paper, record, and so forth)
5. On seeing this sort of work really being performed by kids, the specialists, teachers and other 'large firearms' of Mathematics are wonder-struck and shout: Is this Mathematics or enchantment? Furthermore, perpetually the appropriate response is: it is both. It is wizardry until we comprehend and it is Mathematics from there on.
  6. As respects the time needed by the understudies for dominating the entire course of Vedic Mathematics as applied to every one of its branches, what is required simply is, to state from the genuine encounter, 8 months (or a year) at a normal pace of 2 or 3 hours of the day should do the trick for finishing the Mathematical investigations on these Vedic lines.
  7. Tough Mathematical issues (which the most developed present day Mathematics need to invested enormous measure of time, energy and cash including huge quantities of troublesome, drawn-out and awkward 'ventures' of working) can without much of a stretch and promptly be tackled with the assistance of these super simple Vedic Sūtra-s in a couple of basic advances and strategies. Consequently this can scrupulously be portrayed as —mental Mathematics.
  8. It is consequently in the wellness of things that the four Vedas – R̥g, Sāma, Yajus and Atharva individually incorporate upa-Vedas as underneath, separately:
    9. Āyur Veda (medical science).
    10. Dhanur Veda (archery and other military sciences).
    11. Gāndharva Veda (the science of art and music) and
    12. Sthapatya Veda (engineering, architecture etc. and all branches of Mathematics in general).
  13. This load of subjects, it very well might be noted, are intrinsic pieces of the Vedas i.e., are figured as 'spiritual' studies.
  14. Similar is the situation with Vedāngas (i.e., syntax, prosody, Astronomy, etymology and so forth) which as indicated by the Indian social originations are additionally inborn parts and subjects of Vedic (for example strict) study.
- Mathematics: A Study on Special Parts”, Nepal Journal of Mathematical Sciences (NJMS), 2020, 1.
2. Krishna Kanta Parajuli. Three Classical Methods to find the Cube Roots: A Connective Perspective on Lilavati, Vedic and Pande’s Procedures”, Journal of Nepal Mathematical Society (JNMS) 2021;4:1.
  3. Krishna Prasad Karani. An Empirical Study on Role of Vedic Mathematics in Improving the Speed of Basic Mathematical Operations 2016, 6.
  4. Kumar, Deepak Saha, Prabir Dandapat, Anup. Vedic algorithm for cubic computation and VLSI implementation. Engineering Science and Technology, an International Journal, 2017, 20. 10.1016/j.jestch.2017.10.001.
  5. Kumari Sharmila. “Advantages and benefits of Vedic Mathematics”, IRJMSH 2014;5:9.
  6. Leonard Gibson, Mose S, Thilagar M. “VLSI Implementation of High Speed DSP Algorithms Using Vedic Mathematics”, International Journal of Computer Communication and Information System 2010;2(1):119-122.
  7. Lisha A. Analysis of cryptographic Algorithms Based on Vedic Mathematics” International Journal of Applied Engineering Research ISSN 0973-4562, 2018;13:3.
  8. Dhanave MN. The Implementation of Vedic Mathematics to Algebra and Geometry” IOSR Journal of Mathematics (IOSR-JM) e-ISSN: 2278-5728, p-ISSN: 2319-765X. 2014;10(2):33-36.
  9. Mogre SV, Bhalke DG. “Implementation of High Speed Matrix Multiplier using Vedic Mathematics on FPGA”, Proceedings International Conference on Computing Communication Control and Automation, 2015, 959-963.
  10. Mohammad Nasiruddin *et al.* Implementation of Multiplier-Accumulator (MAC) unit using 16-bit Vedic Multiplier”, International Journal for Research in Engineering Application & Management, 2019.

## Conclusion

Vedic Mathematics Sūtras can be successfully utilized in fundamental just as in higher mathematics. In this time of ferocious contests and the need for general greatness, scouts also have changed their recruiting cycle to represent these components. Aptitude tests frequently fill in as starting screening to the exceptionally looked for positions in the scholarly community just as businesses. VM approach has on numerous occasions demonstrated to bring to the table a tremendous benefit in anticipation of these occasions just as for a person's comprehensive turn of events. Intrinsic sūtra mathematics is valuable in bringing back fun and interest of understudies in an esoteric subject like Mathematics. A systematic and created investigation of Vedic Mathematics will be amazingly valuable for understudies and specialists. The advanced educating of one-way estimations is unbending and exhausting.

## References

1. Krishna Kanta Parajuli. Basic Operations on Vedic