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# Vedic Mathematics In Modern Era

**GAUTAM RAM**

**ASSISTANT PROFESSOR**

**Abstract :** Vedic mathematics provides a universal structure of math by providing simple methods based on personal approach to solve problem. It simply highlights the mental process and principles which are reasonable ,ordered and yet highly flexible. An effort has been made through this paper to highlight certain basic concepts of vedic mathematics and its use in modern era.

**Keyword** : vedic mathematics ,sutras, application.

## 1.INTRODUCTION :

Vedic mathematics is an ancient system of calculation discovered by Shri. Bharati Krishna Tirthaji Maharaj( 1884- 1960 ) from the Vedas during the period of 1911- 18. Abeit, there is no specific mention of existence of these calculative methods in vedic literature .

Vedic mathematics is simply a small collection of 16 aphorisms called sutras . Based on 16 sutras, Vedic math induce the naturally occurring mental process through which mathematical problems can be solved with minimum efforts. Instead of following conventional use of blanket methods, by which problems can be reduced to mechanical response to give stimuli, in reality it promotes an intelligent approach which leads to the development of strategic thinking. In nutshell, Vedic math sutras describe such principles and

methods by which problems can be solved just by inspection.

## 2. BASE OF VEDIC MATHEMATICS .i.e 16 SUTRAS

The 16 main sutras with their companions sub sutras provide a set of rules which is almost applicable to all mathematics. Those 16 main sutras with their translation shown in the table1 below

Working of these sutras can be demonstrate by using formula number two “All from 9, and the last from 10” to determine the answer of the problem below. 10000 - 1257 = ?

First we minus 1 from 9 as the sutra states, resulting in 8. We then subtract 2from 9 giving us 7 and asty 5from9 giving us 4. The last digit 7 is minused from 10 according to the sutra, giving us 3. Our result is 8743 which is the correct answer.

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| ***Sutras*** | ***Translation*** |
|---|---|
| 1.Ekadhikena Purvena | By one more than the one before |
| 2.Nikhilam Navatascharamam Dashatah | All from 9, and the last from 10 |
| 3. Urdhva-tiryagbhyam | Vertically and crosswise |
| 4. Paravartya Yojayet | Transpose and apply |
| 5.Shunyam Samyasamucchaye | If the assemblage is the same it is zero |
| 6. Anurupye Sunyamanyat | If one is in ratio the otheris zero |
| 7. Sankalana vyavakalanabhyam | By addition and by subtraction |
| 8. Puranaprranabhyam | By the completion or non-completion |
| 9. Calana – Kalanabhyam | Differential calculus |
| 10. Yavadunam | By the deficiency |
| 11. Vyastisamashtih | Specific and general |
| 12. Sheshanynkena Charmena | The remainders by the last digit |
| 13. Sopantyadvayamantyam | The ultimate and twice the penultimate |
| 14. Ekanyunena Purvena | By one less than the one before |
| 15. Ginitasamucchayah | Product of the sum |
| 16.Gunaksamucchayah | All the multipliers |

TABE 1

## 3 .APPLICATION IN MODERN ERA

Vedic mathematics not only provide, simple tools for various textual problems but also helpful in providing simplified path to various computation based activities .Few of them are mentioned below :

- ***Digital signal processing :*** Vedic computation techniques are currently being applied in digital signal processing .As mentioned in Texas Instruments that DSP's "bring speed and power to diverse applications, including automotive,voice, audio, consumer, biometrics, aerospace, defense, test and measurement, industria control and more (Texas Instruments)."

- ***Time Area- Power Efficient Multiplier and Square Architecture :*** Various works reveals that result obtained from Vedic mathematics based calculation is faster than other multipliers .Various Study reveals that overall speed of the computer can be increased just by increasing the multiplication speed of the Digital Signal Processor .

- ***Computer Architecture :*** Vedic mathematics simplified cacuations in computer architecture aso ike it simplified mutipier and square

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architecture, AU design , chip designing and so on.

**Conclusion**: The essence of vedic mathematics lies in Indian Vedas, but in India people were less aware of Vedic Mathematics . Although school and Universities started showing interest in it by adopting it in their curriculum. AIbiet at a lot need to be done in this field .

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