

# Vedic Mathematics

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# What is Vedic Mathematics (VM)?

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- ❑ Swami Sri Bharati Krsna Tirthaji Maharaj (1884-1960) during 1911-1918.
- ❑ *Veda* – Illimitable Storehouse of Knowledge.
- ❑ VM is based on 16 formulas.
- ❑ Reconstructed from *Atharvaveda*.
- ❑ Atharvaveda deals with architectures, engineering and general mathematics.

# Vedic Mathematics (Contd..)

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- There were 16 manuscripts written by Swamiji.
- However, they were lost! (or stolen ?)
- Introductory volume was written in 1958.

# Maths is Interesting!!!

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- ❑ Many kids hate Mathematics.
- ❑ Result: Poor scores in exam which further aggravate their hatred.
- ❑ VM helps to do complicated divisions, multiplications etc in few seconds.

Ex: Find the answer without  
knowing the question

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# So how does it work?

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- From the number that audience gives subtract **2** and put it in the beginning.
- So if the first number is 843, then the final answer becomes 2841.
- Subtract each digit of the number that the audience gives you from **9**.

# Techniques

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- ❑ Two types of techniques: specific and general.
- ❑ Specific techniques are effective but only for particular numbers.
- ❑ General techniques have wider scope.

# Squaring of numbers ending with 5

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- Take the number apart from 5. For e.g.  $75 \times 75$ , then take 7.
- After 7 comes 8. So we multiply 7 by 8. That gives us 56.
- Next we multiply last digits i.e. 5 by 5 which gives us 25.
- So the final answer is 5625.



# Multiplication of numbers with a Series of 9

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- Case 1: Equal number of 9's
- E.g.:  $654 \times 999$
- We subtract 1 from the 654 and write half the answer as 653. So the answer at this stage is 653\_\_.
- Now we deal with 653. Subtract each of the digits from 9 giving 346.
- So the final answer is 653346.

# Contd..

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- **Case 2: Multiplying a number with higher number of 9's**
- E.g.:  $45 \times 999$ .
- Re-write it as  $045 \times 999$ , Simple!
- The answer is 044955.

# Contd..

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- **Case 3: Multiplying a number with a lower number of 9's**
- E.g.:  $654 \times 99$ .
- First multiply 654 with 100 (99+1) and then subtract 654 from it.
- I.e.  $65400 - 654 = 64746$ .

# General Techniques

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- **Base Method for Squaring:**
- **Rule:** Whatever the extent of its deficiency, lessen it to the same extent and also set up the square of the deficiency.
- So write the first part of the answer on the LHS and second part on the RHS.

# Contd..

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- E.g.:  $(96)^2$
- The nearest power of 10 is 100.
- The difference  $100-96=4$ , so we further subtract 4 from 96 and put **92** on the LHS.
- We square **4**, make it 16 and put it on RHS.
- The final answer is 9216.

# Contd..

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- E.g.:  $(14)^2$
- Take 10 as base and 4 as surplus.
- Add 4 to 14 and make it 18.
- Take square of 4 and make it 16.
- As the base is 10, RHS can be only **one** digit.
- Hence, carry over extra digit to LHS.
- The final answer is 196.

# Conclusion:

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- ❑ VM is a very powerful tool specially in competitive exams.
- ❑ Many schools, colleges and universities have adopted in their curriculum.
- ❑ It takes a bit of time, effort and practise to master the techniques.

# References

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1. Bharati Krsna Tirthaji and V. S. Agrawala, "Vedic Mathematics" – Writing style is a bit old.
2. Dhaval Bathia, "Vedic Mathematics Made Easy"