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Vedic Maths in a Shortcut View

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Abstract

Vedic mathematics is an ancient scheme based on 16 formulas (sutras). These are easy & simple methods for fast mental calculations. Many researchers have worked on it for its usefulness in various branches like engineering, astronomy, and mathematics. Vedic mathematics helps in faster and more accurate mental calculations by these 16 sutras & 13 up sutras. One can solve any difficult equation in addition, division, multiplication, algebra, trigonometry, square, square root, cube, and cube root only by mental calculations. Today's era is the fastest-growing & ever-changing era. Competitive exams like UPSC, GPSC, CET, GATE, JEE & many other vedic maths help in faster mental calculations & help to reduce time to solve difficult mathematical equations. Vedic mathematics also solves mathematical anxiety among school children & regains interest in math by making mathematics easier. In modern times much research carried out in many universities in India & abroad on the usefulness of India & abroad on the usefulness of Vedic maths. Many universities have started courses based on Vedic maths, yoga & Vedic literature which gain interest in Vedic subjects students. Our nationalist prime minister Shree Narendra Modiji & HRD minister Ms Smriti Irani also taking an interest in Vedic formulas & yoga to become popular in the world. Many schools included Vedic maths & yoga in their curriculum which is accepted by students & parents & teachers well. The present paper deals with an exhaustive review of literature based on Vedic mathematics. It shows Vedic mathematics can be useful for the fastest-growing & ever-changing world in the modern era. Vedic mathematic algorithms can be proved efficient for faster mental calculations & competitive exams.

Keywords: Vedic Mathematics, Modern era.

Introduction

Vedic mathematics is an advanced technology which has lots of formulae and sutras which help us in doing numerals easily and quickly. It includes short tricks, arithmetical logic, reasoning tricks, number theory tricks and all the shortcut methods which mostly require us in doing maths daily.

It is very important to learn Vedic maths at the school level which enhances our curiosity and makes children intelligent. By using Vedic math we can solve lots of problems which increases our decision-making ability.

Many years ago, Vedic maths was developed and implemented also. It's also interesting to learn and teach Vedic math.

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Vedic mathematics:

- Vedic maths increases the intellectual capacity of our brain.
- Daily doing maths by using Vedic math short trick increases the speed of solving math problems.
- It involves some mental math techniques by which we can do maths in our minds within a fraction of a second.
- Also, it has vast applications in calculus, coordinate geometry, and algebraic mathematics.
- Vedic math techniques increase our concentration and determination towards the skill.

1) Short trick for the addition of numbers in Vedic math:

- When we have to add some numbers then we do have not to do maths directly but logically we can find answers accurately and quickly.
- Let us understand the Vedic math techniques.

For example:

1) If we have to find 74+89=? In a few seconds, then we can use mental Vedic math techniques as follows.

Here, the nearest number to 74 is 70 and the nearest number to 89 is 90.

Thus, first, we add 70+90=160

But, instead of 74 we have taken 70 that's why again we add 4. And instead of 89 we have taken 90 that's why we subtract 1 also.

Thus, 160+4-1= 160+3= 163

Hence, 74+89=16

2) If we have to find 88+54+23+49=? Let us see.

We can write also like following,

80+50+20+40= 190

And 8+4+3+9= 24

Thus, 190+24= 190+20+4= 214

Hence, 88+54+23+49= 214

3) If we have to find 13.5 + 12.56 + 18.08=?

Then we do calculations as shown below.

First, we add the whole number part and then the decimal number part and then we find the total addition.

Thus, 13+12+18=43

And 0.50+0.56+0.80= 1.86

Thus, 43+1.86= 44.86

In this way, we can find addition through our mental math techniques

2) Short trick for the subtraction of any numbers by using Vedic math techniques:

Addition is easier than subtraction. But by using mental math techniques we can easily find subtraction also.

1) If we have to find 578-234=?

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Then, we write as follows.
578-234= (500+70+8)-(200+30+4)
= (500-200) + (70-30) + (8-4)
= 300+40+4= 344
Thus, 578-234=344
In this way, we can find subtraction also without using rough paper for calculations or without using a calculator.

2) If we have to find 58.98-1.23-23.40=?

Then we can find out as shown below.
We take first only the whole number part and then the decimal part as given below.
58-1-23=58-24= (50-20) + (8-4) =30+4=34
And, 0.98-0.23-0.40= 0.98-0.63=0.35
Thus, 34+0.35=34.35
Hence, 58.98-1.23-23.40= 34.35

3) If we have to find 980-408+345=?

Then, we write as
900+80-400-8+300+45= (900+80+300+45)-(400+8)
= (1200+125)-(408)
= (1200-400) + (125-8)
= 800+117=917
Thus, 980-408+345= 917

3) Short trick for multiplication of numbers by using Vedic mental math techniques:

1) Trick for multiplying any numbers:

For example:

We have to find,
23*4= (20+3)*4= 20*4+3*4= 80+12=92
If we have to find, 45*34=?
Then we proceed as follows.
(40+5)*(30+4) = (40*30) + (40*4) + (5*30) + (5*4)
= 1200+ 160+150+20
= 1360+170= 1360+100+70= 1460+70= 1530
Thus, 45*34= 1530
In this way, we can find the multiplication of any numbers in our way easily and accurately.
If we have practised these tricks in our daily maths then we can solve problems by using Vedic maths quickly and accurately.

2) Trick for multiplication of any number with 5:

It is easy to multiply any number by 10 than 5.
Hence, we can write 5 as 10/2.

For example:

If we have to find 23*5=?
Then, we write here 5 as 10/2.

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Thus, 23*5= 23*10/2= 230/2= 115

Thus, by multiplying with 10 first and then making that answer half we can easily find multiplication with 5.

If we have to find 567*5=?

Then, we proceed as follows.

567*5= 567*10/2= 5670/2= 2835

If we have to find, 9.8*5=? Then,

9.8*5 = 9.8*10/2 = 98/2= 49

3) Short trick for multiplication of any number with 25:

We can multiply any number by 100 more easily than 25. Thus here we write 25 as 100/4.

For example:

If we have to find, 45*25=? Then we write as follows.

45*100/4= 11.25*100= 1125

In this way, we can easily calculate the answers quickly and accurately.

If we have to find, 678*25=? Then

678*25= 678*100/4= 169.5*100= 16950

This is the correct answer.

If we have to find, 9.8*25=? Then,

9.8*25= 9.8*100/4= 2.45*100= 245

In this way, we can use this mental math technique for the multiplication of decimal numbers with 25 also. By practising more we get perfection.

4) Short trick for multiplication of any number with 11:

If we have to multiply any two-digit number with 11, then first we write the ending numbers as it is and then by taking successive numbers addition from left we write unit digit only, and the other than unit digit number we take a carry it.

To understand more clearly see the following example.

If we have to find, 34*11=?

Then

Here ending numbers are 3 and 4. We write them as it is.

And 3+4=7 we write in between them thus our answer becomes,

34*11= 374

5) Short trick for squaring any number ending with 5:

The formula for finding the square of any number ending with 5 is,

$(N5)^2 = N*(N+1), 25$

Here, N is the number other than 5.

For example:

$(15)^2$ =?

Here, N=1 hence we write as, $(15)^2$= 1*(1+1), 25 = 2, 25= 225

Thus, $(15)^2$= 225

Vedic Maths Benefits

The importance of Vedic Maths can be explained in various ways. The application of Vedic maths in the simplification of numerical problems is many times faster than modern methods

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of calculations. Sometimes, this way of simplifying numerical calculations does not require paper and pen also. Thus, learning Vedic maths saves time and improves the interest in learning more applications of maths. Some of the benefits of Vedic mathematics sutras are listed below:

- Calculations become easy and short.
- Simplifications can be done in less time.
- Students undergo less mental stress.
- Results obtained by sutra-based methods can be easily verified with normal procedures.
- The possibility of committing errors by students using these sutras is negligible
- The use of sutras helps students to improve their knowledge and interest in the subject of mathematics.
- Vedic maths helps to solve hard problems using mental calculations

Conclusion

In India, people were less aware of Vedic mathematics. Many schools have realized the importance of Vedic mathematics. Many Schools and Educational Institutions have adopted Vedic mathematics in their curriculum. India has also Vedic culture and hence schools are coming forward to adopt Vedic mathematics but there is still a great shortage of Vedic mathematics trainers/teachers in India. This scenario gives a great opportunity for teachers to expand their profile.

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