

INTRODUCTION

1.1 Introduction

In this era we go to School, College and complete our education. After completing all education we need to live a normal life . Most of us think of getting a government job like in SSC, IBPS, UPSC, TET etc. Nowadays to get any dream job we need to clear the cutoffs and not just clearing cutoffs but we need to be in the merit list to get our dream job. Most of the competitive exams include Reasoning, Quantative Aptitude, English and general knowledge. Here quant aptitude is most important which require smart approach and smart technique to solve rather than traditional method. During solving an aptitude question we should be able to solve the question in the shortest time to clear the exam. I started searching for some methods in internet in which I found Vedic calculation technique where I can solve lengthy calculation in minimum time. And this Vedic Calculation Technique is different from traditional approach and it can be used in many competitive exams to get our dream job.

1.1.1 History of Vedic Calculation

Necessity is the mother of invention, which means whenever there is any scientific development, there is a need behind that development. Because our sages needed mathematics in the Vedic period, they developed Vedic Mathematics. We have no idea about when Vedic Mathematics was developed, because nothing was written at that time, everything was remembered chanting and till one generation it was transferred to another generation, so because of this reason. We do not have any written text to tell that this math was developed at this particular time, some texts started coming around 1000BCE and on the basic of the text at that time we can tell how much knowledge of mathematics was at that time.

The Vedas, written around 1500-500 BCE, are ancient Indian texts containing a record of human experience and knowledge. Thousands of years ago, Vedic mathematicians authored various theses and dissertations on mathematics. It is now commonly believed and widely accepted that these treatises laid down the foundations of algebra, algorithm, square roots, cube roots, various methods of calculation, and the concept of zero.

1.1.2 Background of Mathematical information in the Vedas

The word Veda has two basic meanings. The first refers to knowledge in Sanskrit and the second refers to a collection of hymns poetry and Hindu ceremonial formulae in ancient literature of Hinduism. It is believed that it is the oldest human written record which was traditionally passed down orally and adapted from generation to generation by sacred sages called rishis.

The Vedas are divided into 4 sections i.e, Rig Veda, Yajur Veda, Sama Veda and Atharva Veda. The first three Veda are used as ritual handbooks by the priests. But the fourth Veda i.e Atharva Veda is distinct from others as it contains hymns spells and magical incantations which was accepted by Brahmins this Veda also include architecture, astronomy, etc.

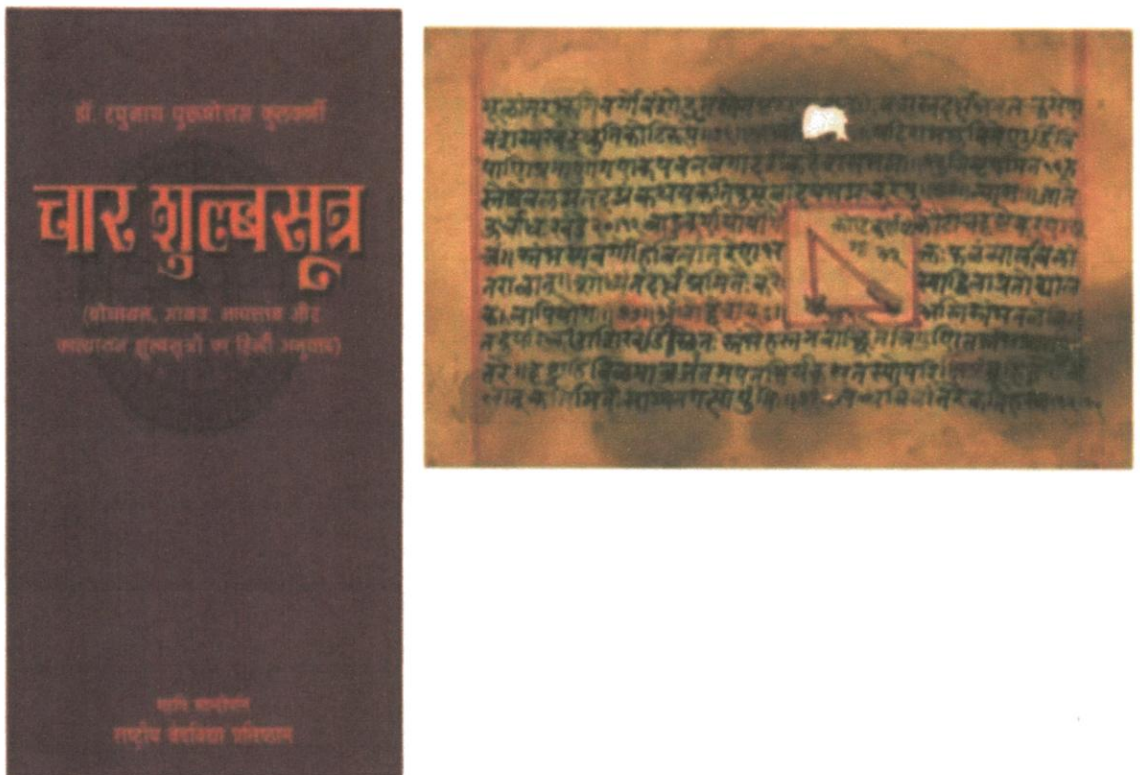


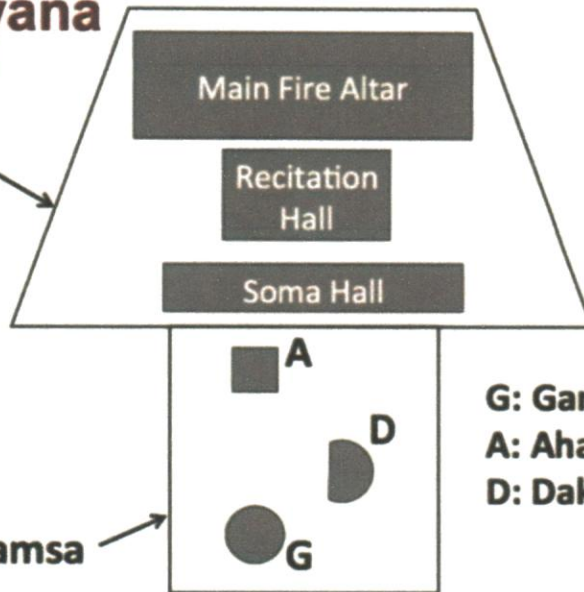
Figure 1 [sulva-sutra-s]

Ritual activities found in Vedic texts were the mathematics as in the sulva-sutra-s of Boudhayana (800 BCE) from which modern method of multiplication and addition probably have emerged; work of sage Apastamba (600 BCE) Which tells about construction of ritual altars coming under Geometry (Rekha-ganita). Several Arithmetic operations like addition, subtraction, etc. are to be found in Visnu Purana pioneered by Vedavyas (Pre-1000 BCE). It is believed that the Harappan time acquired Geometric knowledge just as Boudhayana's sutra contents the concepts of equivalency of two or more Geometric shapes. If we read the Shulabh-Sutra, then it comes to know that what our ancestors knew about mathematics at that time. At that time there used to be a very important ritual which was called Agnicayana, Agnicayana was a complete 12-day religious ritual which was a public affairs in which all the people of the city used to attend it, this ritual was performed at two different places. In one of the area there was an area Mahavedi which was a trapezium shaped area as you can see in the figure,

Agnicayana Fire Ritual

Mahavedi

Pracinvamsa



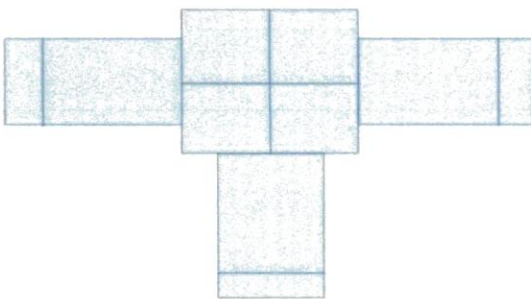
G: Garhapatya
A: Ahavaniya
D: Dakshinagni

Figure 2 [Agnicayana]

which was Mahavedi used to have main fire alter inside it where the main sacrifice was done, it was done there and used to be an area which we used to call Pracinvamsa. This area used to be where three different fires, one was of circular shape which represented the earth, one was of half circular which represented the whole space and one was of square shape which represented the sky. The principle fire had a popular shape, it used to be the shape of a falcon.

Falcon Shaped Fire Altar

Caturasra Shyena



Vakrapaksa Shyena

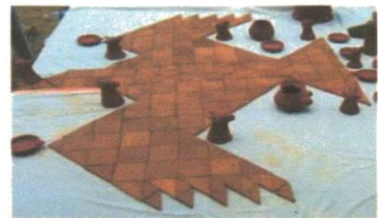


Figure 3 [Falcon Shaped Fire Altar]

Again the shape of falcon differ, in the simple shape there was Caturasra Shyena and in the complicated was the Vakrapaksa Shyena. For the successful religious rituals and jangya the shape and size of the fire alter should be precise. This indicate that the sages had perfect knowledge of mathematical shape and their area.

Most of the formulation are found relevant with theoretical & practical accuracy. As the Vedic texts were result (without proof) based, one may guess that the works were trial and error based or generalisation of observed examples; and it may happen that the works have been lost or destroyed. The importance of Mathematics was also emphasized by Jain mathematician Mahavira acharya who significantly state about Ganita. In all cases, Mathematics was the supreme soul of every discipline.

Ancient Indian Vedic civilization was skilled in geometry, algebra and computational mathematics and it is complex enough to incorporate things like irrational numbers. All this mathematics literature was composed in verses that were later preserved in written records.

1.1.3 Bharathi Krishna Tirthaji Discovery:-

Vedic Calculation Technique is a collection of Sutras to solve mathematical arithmetic's in an easy and faster way. It consists of 16 Sutras (Formulae) and 13 Sub Sutras (Sub Formulae) which can be used for problems involved in arithmetic, algebra, geometry, calculus, conics. Vedic Calculation Technique is a system of mathematics which was discovered by Indian mathematician Jagadguru Shri Bharathi Krishna Tirtha ji in the period between A.D. 1911 and 1918 and published his findings in a Vedic Mathematics book written by the Indian monk Bharati Krishna Tirtha, and first published in 1965. It contains a list of mathematical techniques, which the author claimed were retrieved from the Vedas and supposedly contained all mathematical knowledge. These formulae are intended to describe the way the mind naturally works and are therefore supposed to be a great help in directing the students to the appropriate method of solution. None of these sutras has ever been found in Vedic literature, nor are its methods consistent with known mathematical knowledge from the Vedic era.

1.2 Statement of the problem

“A Study of Impact of Vedic Calculation Technique on Mathematics Learning”

1.3 Rationale of the problem

In the current scenario some of the students are getting bored and are not interested in teaching with Traditional Mathematics Technique. So, many students are legging behind in mathematics subject. Moreover, due to lack of interest results in inconsistency. There

is an urgent need to implement new techniques of teaching mathematics which can increase the interest of the students. The question of teaching the best method in mathematics is constantly decreasing to the researcher. So my research deals with the comparison between Traditional Mathematics Technique and Vedic calculation technique. The result of this research will be useful to the students and teachers as this is comparative study between Conventional Mathematics Technique and Vedic Calculation Technique.

1.4 Objective of the study

Following objective are formulated for the study :

1. To study the impact of Vedic Calculation Technique for enhancing the performance of the students in solving addition and subtraction.
2. To study the impact of Vedic Calculation Technique for enhancing the time taken by the students in solving addition and subtraction.

1.5 Hypothesis of the study

1. There is no significant difference in the pre-test and post-test scores of the students performance in Addition and Subtraction after implementation of the Vedic Calculation Technique.
2. There is no significant difference in the pre-test and post-test time taken by the students in doing Addition and Subtraction after implementation of the Vedic Calculation Technique.

1.6 Research Question

1. How Vedic calculation technique is different from regular at primary level ?
2. Why basic mathematical operations so important at primary level ?

1.7 Operational Definition

Vedic Calculation Technique:-

Vedic Calculation Technique is a collection of sutras and sub sutras to solve math problems in a faster & easy way.

1.8 Delimitations of the study

1.The study will confined to 20 students of standard III studying in Government primary School in my village.

2.The study is confined to learning addition and subtraction of two and three digit numbers only.

1.9 Chapterization

1.Introduction

Objectives and research questions

2.Review of related literature

3.Research Methodology

4.Data Analysis and Findings

5.Conclusion