

# EXPLORE BHARATIYA GANITAM

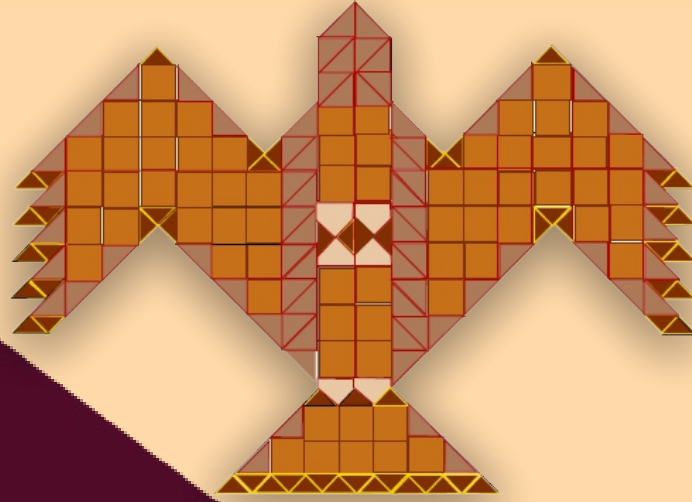
Class VIII level

Sanskrit for Specific Purpose Series - 7

## A PRIMER TO BHĀRATĪYA GAṆĪTAM

BHĀRATĪYA-GAṆĪTA-PRAVEŚĀ

Part-I



**A book Published by**

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# A PRIMER TO BHĀRATĪYA GAṆITAM BHĀRATĪYA-GAṆITA-PRAVEŚĀ

$$A_n \frac{1}{2^{6n}} \left( \frac{\sqrt{5} - 1}{2} \right)^{8n}$$

## Part-I

(Introduction to Indian Mathematics for Students of Classes VII-VIII)

In recent times, there have been many scholarly studies which discuss the seminal contributions of Indians in mathematics, and indicate how these contributions have influenced the development of mathematics the world over. It is also fairly established that much of the mathematics which is currently taught at the school level, largely originated in India, and formed a major component of the popular education that was widely prevalent throughout the Indian subcontinent for millennia. Unfortunately, the curriculum and textbooks of mathematics, which are currently followed in our country, make no mention whatsoever of Indian contributions to mathematics. While a miniscule fraction of our students may be aware of the names of great mathematicians such as Āryabhaṭa, Brahmagupta, Bhāskarācārya and Mādhava, few among them would be able to recount any of the significant contributions made by these or other famous Indian mathematicians.

This series of books on “Bhāratīya-Gaṇita-Praveśā” is a novel initiative by Samskrit Promotion Foundation to familiarise our students with the way various concepts and techniques of mathematics have been expounded, along with interesting examples, in the great textbooks and treatises written in India from the Vedic times till the modern period. In this first volume, we have attempted to cover many of the topics which are part of the mathematics curriculum that is currently taught in classes VII-VIII. We have also included some supplementary topics from ancient Indian texts, which we think would be of interest to the students at this level. This book is aimed at students of classes VII-VIII with basic knowledge of Samskrit language. However, other students can also follow the contents of the material with the help of the English translations and the able guidance of a teacher.

The present volume, Bhāratīya-Gaṇita-PraveśāI, is structured as follows. From arithmetic to algebra and geometry, there are eight chapters included in Part I of this book. In Part II, we have included three chapters dealing with some supplementary topics such as the geometrical constructions found in Śulbasūtras, the fascinating topic of magic squares and, finally, a brief history of development of mathematics in India. The Samskrit passages quoted from the ancient texts are given in Devanāgarī script. This is followed by an English translation of the passage along with explanation of the mathematical content of the passage. In most sections of this book, we have included exercises to be worked out by the students. Most of the exercises are in the form of verses taken from the original Samskrit texts, for which simple translations are also provided. Students can try to solve these exercise problems following the rules and examples which are discussed in the text. There are three Appendices at the end of the book. First is a Glossary of technical Samskrit words used in Indian works on Mathematics or Gaṇitaśāstra. In the next Appendix, we have indicated the solutions to the problems given in the book. This is followed by a Bibliography which lists a few books for further study, and also gives the publication details of the source works and secondary literature cited in the book.

$$\frac{16}{\pi} = \sum_{n=0}^{\infty} (42n + 5)$$

$$\frac{4}{\pi} = \sum_{n=0}^{\infty} (6n + 1) A_n \frac{1}{4^n}$$

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**Prof M. D. Srinivas, Chairman,  
Centre for Policy Studies, Chennai**

I am very happy that Samskrit Promotion Foundation has inspired a group of highly motivated scholars to take up this project of making the great Indian classics in Mathematics accessible to our school students. I congratulate them for this novel and timely publication.

**Prof. K.Ramasubramanian,  
IIT Mumbai**

This is an excellent supplement for school children, up to class VIII, to learn about the Indian contribution to the development of mathematics in the areas of Arithmetic, Algebra and Geometry along with historical snippets, slokas, exercises and glossary.



**Prof. Amartya Kumar Datta,  
Indian Statistical Institute, Kolkata**

This is a good effort. Please bring the second part of the series soon.



**Prof. Michel Danino,  
IIT Gandhinagar, Gujarat**

This book was long overdue. Needs to be translated to various Indian languages. These books can be used as supplementary material at the school level.



**Prof. MS Sriram  
President, Prof. K. V. Sarma Research Foundation, Chennai**

This is the right kind of book for introducing Indian mathematics at the class 7-8 level, with a large number of examples, instructive exercises, and a very useful glossary. It is indeed a very important step in fulfilling the NEP 2020 objectives.

