

ગુજરાત રાજ્યના શિક્ષણવિભાગના પત્ર-ક્રમાંક
મશબ/1211/414/છ, તા. 19-1-2012 થી-મંજૂર

MATHEMATICS

Standard 12

(Semester III)



PLEDGE

India is my country.
All Indians are my brothers and sisters.
I love my country and I am proud of its rich and varied heritage.
I shall always strive to be worthy of it.
I shall respect my parents, teachers and all my elders and treat everyone with courtesy.
I pledge my devotion to my country and its people.
My happiness lies in their well-being and prosperity.

Price : ₹ 94.00



Gujarat State Board of School Textbooks
'Vidyayan', Sector 10-A, Gandhinagar-382 010

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PREFACE

The Gujarat State Secondary and Higher Secondary Education Board has prepared new syllabi in accordance with the new national syllabi prepared by the N.C.E.R.T. These syllabi are sanctioned by the Government of Gujarat.

It is a pleasure for the Gujarat State Board of School Textbooks, to place this textbook of **Mathematics** before the students for **Standard 12 (Semester III)** prepared according to the new syllabus.

The manuscript has been fully reviewed by experts and teachers teaching at this level. Following the suggestions given by teachers and experts, we have made necessary changes in the manuscript before publishing the textbook.

The Board has taken special care to make this textbook interesting, useful and free from errors. However, we welcome suggestions, to enhance the quality of the textbook.

H. K. Patel GAS
Director

Dr Nitin Pethani
Executive President

Date : 22-08-2013

Gandhinagar

First Edition : 2012, Reprint : 2012, 2013

Published by : H. K. Patel, Director, on behalf of Gujarat State Board of School Textbooks,
'Vidyayan', Sector 10-A, Gandhinagar

Printed by :

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About This Textbook...

We are happy to publish the textbook for semester III for standard XII, in continuation of textbooks of semester I and semester II for standard XI prepared on the base of NCERT syllabus and NCF 2005.

This textbook has been prepared originally in English as in the case of textbooks of semester I and II for standard XI. The manuscript has been thoroughly examined by learned teachers from schools and colleges in a workshop in the month of October. The suggestions and proper amendments had been accepted and the revised manuscript has been translated in Gujarati. The Gujarati version was also examined by teachers from schools and colleges and the necessary amendments were made. The English manuscript and the translated version in Gujarati were read by language experts and the corrections were made. This way the final draft of the manuscript was prepared. It was reviewed in the office of Gujarat Higher Secondary and Secondary Education Board by invited expert teachers in the presence of the writers. The suggestions made by them were incorporated and the manuscript was finalized.

In chapter 1, there are explanation of relations, types of relations, equivalence classes, functions, one-one and onto functions, inverse functions and binary operations as functions. These points are explained in the textbook as in the NCERT textbooks. In chapter 2, we explain trigonometric inverse functions and their graphs and related theorems. The result of these chapters are very useful in the study of calculus. In chapter 3, we deal with the information about determinants and their theorems and their applications to solve a system of linear equations and in coordinate geometry. In chapter 4 we apply this information for the system of linear equations. The Echelon method to find the inverse of a matrix is an important point of this chapter. To find the inverse of a matrix without the use of determinants, Echelon method is useful. In semester III we began with the study of the limits. In chapter 5, we proceed further with the idea of limit and study continuity and differentiation in details. This chapter is very useful in the study of application in semester IV. Chapter 6 is the beginning of indefinite integration. Study of integration and differentiation is a base for calculus. Leibnitz and Newton both studied them in different directions and connected them. We have started with differentiation and taken as a basis of integration. Chapter 7 and 8 are the sections of statistics. We have continuously the study of probability which began in standard IX and carried it further upto binomial distribution. Chapters 8 is about linear programming.


We have studied graphs of linear inequalities in semester I of standard XI. We use them to solve practical problems in this chapter.

Attractive four-colour title, four-colour printing and figures make this textbook very useful and valuable. Plenty of illustrations and exercises are useful to explain concepts and variety of problems. They will help the students in achieving good marks in semester examination and competitive examinations.

We thank all who helped to prepare this textbook. We hope that all students, teachers and parents all would like this textbook. Positive suggestions to enhance the quality of this textbook are welcomed.

– Authors



Born	22 December, 1887 Erode, Madras Presidency	
Died	26 April, 1920 (aged 32) Chetput, Madras, Madras Presidency	
Nationality	India	
Fields	Mathematics	
Alma mater	Government Arts College Pachaiyappa's College The University of Cambridge	
Academic advisors	G. H. Hardy J. E. Littlewood	Shreenivas Ramanujan <hr/> Government of India has declared to celebrate the year 2012 as 'a year of Mathematics' in memory of Shree Ramanujan on his 125th birthday. <hr/>
Known for	Landau–Ramanujan constant Mock theta functions Ramanujan conjecture Ramanujan prime Ramanujan–Soldner constant Ramanujan theta function Ramanujan's sum Rogers–Ramanujan identities	
Influences	G. H. Hardy	

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