

Theory and Problems of Linear Algebra, 1/e

R.D Sharma & Ritu Jain

2010 784 pp Paperback ISBN: 9789380578866 Price: 595.00

About the Book

Theory and Problems of Linear Algebra has been designed to cater to the need of students opting Linear Algebra as a subject at undergraduate and postgraduate levels in various Indian universities. The book exhaustively covers the subject matter and its applications in various fields.

To understand the subject matter covered in the book, reader must be aware of some basic concepts of abstract algebra. These prerequisites have been covered in Chapter-0. The reader is advised to go through this chapter first before switching over to the next chapter. The subject matter has been graded in such a systematic manner that the knowledge of topics covered in each chapter (except Chapter-0) is a prerequisite to understand the topics covered in the chapters to follow.

Chapter 1 deals with modules and emphasis has been given to module morphisms, cyclic modules, free modules and notherian modules. Chapter 2 is an extension of chapter 1, when ring is replaced by a field. Linear independence and dependence of vectors have been discussed. In Chapter 3, vector space homomorphisms, widely known as linear transformation, have been discussed.

Chapter 4 deals with relations between linear transformations between finite dimensional vector spaces and matrices.

In Chapter 5, concept of the determinant of a square matrix have been introduced and various properties of determinants have been discussed. Inner product spaces, unitary spaces and linear operators on them have been discussed in detail in the next four chapters (Chapter 6 to Chapter 9). Bilinear forms and associated quadratic forms have been explained in the last chapter.

Features of the book will not only serve as a text book for a formal course in linear algebra but also as a supplement to standard texts in linear algebra and will also be helpful to all readers irrespective of their fields of specification.

Salient Features

Salient Features:

- ▶ All topics in the chapters are illustrated with ample solved examples, and proofs of all the important theorems and lemmas.
- ▶ Generalizations and corollaries have been given wherever applicable.
- ▶ Essential theory has been given at appropriate places in the book.
- ▶ Rich set of exercises has been given for each topic.

Table of Contents

- ▶Priliminary Concept
- ▶ Modules
- ▶ Vector Spaces
- ▶ Linear Transformations
- ▶ Linear Transformations and Matrices
- ▶ Determinants
- ▶ Inner Product Spaces
- ▶ Linear Operators on Inner Product Spaces
- Unitary Spaces
- ▶ Operators on Unitary Spaces
- ▶ Bilinear and Quadratic Forms
- ▶ Index.

About the Author

R.D Sharma: Dr. R.D. Sharma did his B.Sc. (Honours), M.Sc. and Ph.D. from University of Rajasthan, Jaipur. He was awarded Gold Medal in both B.Sc. (Honours) and M.Sc. for standing first in order of merit. He was awarded Ph.D. in 1987. He has more than 30 years of experience in

teaching postgraduate, graduate and diploma level students. He has written more than 25 books of different levels ranging from class VI to postgraduate level which are very well received by the readers. He is currently working as Head of the Department (Science and Humanities) in the Department of Technical Education, Government of Delhi.

Ritu Jain: - Ritu Jain is Associate Professor, Department of Statistics, PGDAV College, University of Delhi. She was awarded Gold Medal in M.Sc[i1]. (Statistics) and obtained her Ph.D. from Delhi University in the field of Probability. She has teaching experience of more than 26 years and has several research papers to her credit.