

Harry Lass Vector Tensor Analysis

This text is designed for an intermediate-level, two-semester undergraduate course in mathematical physics. It provides an accessible account of most of the current, important mathematical tools required in physics these days. It is assumed that the reader has an adequate preparation in general physics and calculus. The book bridges the gap between an introductory physics course and more advanced courses in classical mechanics, electricity and magnetism, quantum mechanics, and thermal and statistical physics. The text contains a large number of worked examples to illustrate the mathematical techniques developed and to show their relevance to physics. The book is designed primarily for undergraduate physics majors, but could also be used by students in other subjects, such as engineering, astronomy and mathematics.

Elie Cartan's book *Geometry of Riemannian Manifolds* (1928) was one of the best introductions to his methods. It was based on lectures given by the author at the Sorbonne in the academic year 1925-26. A modernized and extensively augmented edition appeared in 1946 (2nd printing, 1951, and 3rd printing, 1988). Cartan's lectures in 1926-27 were different -- he introduced exterior forms at the very beginning and used extensively orthonormal frames throughout to investigate the geometry of Riemannian manifolds. In this course he solved a series of problems in Euclidean and non-Euclidean spaces, as well as a series of variational problems on geodesics. The lectures were translated into Russian in the book *Riemannian Geometry in an Orthogonal Frame* (1960). This book has many innovations, such as the notion of intrinsic normal differentiation and the Gaussian torsion of a submanifold in a Euclidean multidimensional space or in a space of constant curvature, an affine connection defined in a normal fiber bundle of a submanifold, etc. The only book of Elie Cartan that was not available in English, it has now been translated into English by Vladislav V Goldberg, the editor of the Russian edition.

Vector and Tensor Analysis New York, McGraw-Hill
Vector and Tensor Analysis By Harry Lass
Vector & Tensor Analysis Academic Publishers
Elements of Pure and Applied Mathematics Courier Corporation

Accompanied by Readers' guide (33 p. ; 28 cm.) New York : McGraw-Hill, c1977. Call number: Q121.M3 1977 Suppl. 1. Accompanied by Study guide (50 p. ; 28 cm.) New York : McGraw-Hill, c1977. Call number: Q121.M3 1977 Suppl. 2.

Completely self-contained, this survey explores the important topics in pure and applied mathematics. Each chapter can be read independently of the others, and all subjects are unified by cross-references to the complete work. Numerous worked-out examples appear throughout the text, and review questions and references conclude each section. 1957 edition.

Examines general Cartesian coordinates, the cross product, Einstein's special theory of relativity, bases in general coordinate systems, maxima and minima of functions of two variables, line integrals, integral theorems, and more. 1963 edition.

A comprehensive, 20-volume reference encyclopedia on science and technology.

Papers and proceedings.

Vector Analysis and Cartesian Tensors, Second Edition focuses on the processes, methodologies, and approaches involved in vector analysis and Cartesian tensors, including volume integrals, coordinates, curves, and vector functions. The publication first elaborates on rectangular Cartesian coordinates and rotation of axes, scalar and vector algebra, and differential geometry of curves. Discussions focus on differentiation rules, vector functions and their geometrical representation, scalar and vector products, multiplication of a vector by a scalar, and angles between lines through the origin. The text then elaborates on scalar and vector fields and line, surface, and volume integrals, including surface, volume, and repeated integrals, general orthogonal curvilinear coordinates, and vector components in orthogonal curvilinear coordinates. The manuscript ponders on representation theorems for isotropic tensor functions, Cartesian tensors, applications in potential theory, and integral theorems. Topics include geometrical and physical significance of divergence and curl, Poisson's equation in vector form, isotropic scalar functions of symmetrical second order tensors, and diagonalization of second-order symmetrical tensors. The publication is a valuable reference for mathematicians and researchers interested in vector analysis and Cartesian tensors.

This outstanding text and reference for upper-level undergraduates features extensive problems and solutions in its application of matrix ideas to vector methods for a synthesis of pure and applied mathematics. 1963 edition. Includes 121 figures.

This textbook provides a rigorous approach to tensor manifolds in several aspects relevant for Engineers and Physicists working in industry or academia. With a thorough, comprehensive, and unified presentation, this book offers insights into several topics of tensor analysis, which covers all aspects of n-dimensional spaces. The main purpose of this book is to give a self-contained yet simple, correct and comprehensive mathematical explanation of tensor calculus for undergraduate and graduate students and for professionals. In addition to many worked problems, this book features a selection of examples, solved step by step. Although no emphasis is placed on special and particular problems of Engineering or Physics, the text covers the fundamentals of these fields of science. The book makes a brief introduction into the basic concept of the tensorial formalism so as to allow the reader to make a quick and easy review of the essential topics that enable having the grounds for the subsequent themes, without needing to resort to other bibliographical sources on tensors. Chapter 1 deals with Fundamental Concepts about tensors and chapter 2 is devoted to the study of covariant, absolute and contravariant derivatives. The chapters 3 and 4 are dedicated to the Integral Theorems and Differential Operators, respectively. Chapter 5 deals with Riemann Spaces, and finally the chapter 6 presents a concise study of the Parallelism of Vectors. It also shows how to solve various problems of several particular manifolds.

The worlds most comprehensive and up-to-date collection of Multidisciplinary Micro and Nano technical papers. Technical Proceedings of the 2001 International Conference on Computational Nano Science and Nano Technology. Computational Biology and Molecular Design, Bioinformatics and Mathematical Biology, Polymers and Colloids, Molecules and Molecular Materials, Atomistic and Nanoscale Modeling, Computational Materials, Nanoscale Theory and Methods, . Papers taken from the 2001 MSM, Hilton Head Island, USA, March. 2001.

Concise, readable text ranges from definition of vectors and discussion of algebraic operations on vectors to the concept of tensor and algebraic operations on tensors. Worked-out problems and solutions. 1968 edition.

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