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Calculus: Calculus of several variables with applications to probability and vector analysis
Tensor and Vector Analysis
A History of Vector Analysis
Elementary Vectors
Elementary Vector Calculus and Its Applications with MATLAB Programming
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KAITLYN LEVY

Student Study Guide with Solutions for Vector Calculus by Jerrold E. Marsden and Anthony Tromba, Sixth Edition Wiley
The text provides advanced undergraduates with the necessary background in advanced calculus topics, providing the foundation for partial differential equations and analysis. Readers of this text should be well-prepared to study from graduate-level texts and publications of similar level. KEY TOPICS: Ordinary Differential Equations; The Laplace Transform; Numerical Methods for Solving Ordinary Differential Equations; Series Solutions of Differential Equations: Special Functions; Boundary-Value Problems and Characteristic-Function Representations; Vector Analysis; Topics in Higher-Dimensional Calculus; Partial Differential Equations; Solutions of Partial Differential Equations of Mathematical Physics; Functions of a Complex Variable; Applications of Analytic Function Theory MARKET: For all readers interested in advanced calculus.
Partial Differential Equations for Computational Science World Scientific
This concise text is a workbook for using vector calculus in practical calculations and derivations. Part One briefly develops vector calculus from the beginning; Part Two consists of answered problems. 2020 edition.
Introduction to Vector Analysis SM Courier Corporation
This book presents problems and solutions in calculus with curvilinear coordinates. Vector analysis can be performed in different coordinate systems, an optimal system considers the symmetry of the problem in order to reduce calculatory difficulty. The book presents the material in arbitrary orthogonal coordinates, and includes the discussion of parametrization methods as well as topics such as potential theory and integral theorems. The target audience primarily comprises university teachers in engineering mathematics, but the book may also be beneficial for advanced undergraduate and graduate students alike.
A Textbook of Vector Analysis Springer

Science & Business Media
A Textbook of Vector Analysis
Vector Analysis Springer Nature
An introduction to vector calculus with the aid of Mathematica® computer algebra system to represent them and to calculate with them. The unique features of the book, which set it apart from the existing textbooks, are the large number of illustrative examples. It is the author’s opinion a novice in science or engineering needs to see a lot of examples in which mathematics is used to be able to “speak the language.” All these examples and all illustrations can be replicated and used to learn and discover vector calculus in a new and exciting way. Reader can practice with the solutions, and then modify them to solve the particular problems assigned. This should move up problem solving skills and to use Mathematica® to visualize the results and to develop a deeper intuitive understanding. Usually, visualization provides much more insight than the formulas themselves. The second edition is an addition of the first. Two new chapters on line integrals, Green's Theorem, Stokes's Theorem and Gauss's Theorem have been added.
Solutions to Vector Analysis and Geometry Macmillan
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.
Vector Calculus Courier Corporation
This text combines the logical approach of a mathematical subject with the intuitive approach of engineering and physical topics. Applications include kinematics, mechanics, and electromagnetic theory. Includes exercises and answers. 1955 edition.
Multivariable Calculus and Mathematica® New Central Book Agency
In this book the notion of a Vector has been approached from two points of view - Geometric and Algebraic. The relationship between the two has also been established.
Problems and Worked Solutions in Vector Analysis McGraw Hill Professional
'Vector Calculus' helps students foster computational skills and intuitive understanding with a careful balance of theory, applications, and optional materials. This new edition offers revised coverage in several areas as well as a large number of new exercises and expansion of historical notes.
Problems and Worked Solutions in Vector Analysis Courier Corporation
This book play a major role as basic tools in Differential geometry, Mechanics, Fluid Mathematics. The bulk of the book consists of five chapters on Vector Analysis and its applications. Each chapter is accompanied by a problem set. The problem sets constitute an integral part of the book. Solving the problems will expose you to the geometric, symbolic and numerical features of multivariable calculus. Contents: Algebra of Vectors, Differentiation of Vectors, Gradient Divergence and Curl, Vector Integration, Application of Vector Integration.
Two and Three Dimensional Calculus Steven Tan
The tensorial nature of a quantity permits us to formulate transformation rules for its components under a change of basis. These rules are relatively simple and easily grasped by any engineering student familiar with matrix operators in linear algebra. More complex problems arise when one considers the tensor fields that describe continuum bodies. In this case general curvilinear coordinates become necessary. The principal basis of a curvilinear system is constructed as a set of vectors tangent to the coordinate lines. Another basis, called the dual basis, is also constructed in a special manner. The existence of these two bases is responsible for the mysterious covariant and contravariant terminology encountered in tensor discussions. A tensor field is a tensor-valued function of position in space. The use of tensor fields allows us to present physical laws in a clear, compact form. A byproduct is a set of simple and clear rules for the representation of vector differential operators such as gradient, divergence, and Laplacian in curvilinear coordinate systems. This book is a clear, concise, and self-contained treatment of tensors, tensor fields, and their applications. The book contains practically all the material on tensors needed for applications. It shows how this material is applied in mechanics, covering the foundations of the linear theories of elasticity and elastic shells. The main results are all presented in the first four chapters. The remainder of the book shows how one can apply these results to differential geometry and the study of various types of objects in continuum mechanics such as elastic bodies, plates, and shells. Each chapter of this new edition is supplied with exercises and problems most with solutions, hints, or answers to help the reader progress. An extended appendix serves as a handbook-style summary of all important formulas contained in the book.
Schaum's Outline of Theory and Problems of Vector Analysis and an Introduction to Tensor Analysis Springer Science & Business Media
Covers multivariable calculus, starting from the basics and leading up to the three theorems of Green, Gauss, and Stokes, but always with an eye on practical applications. Written for a wide spectrum of undergraduate students by an experienced author, this book provides a very practical approach to advanced calculus—starting from the basics and leading up to the theorems of Green, Gauss, and Stokes. It explains, clearly and concisely, partial differentiation, multiple integration, vectors and vector calculus, and provides end-of-chapter exercises along with their solutions to aid the readers’ understanding. Written in an approachable style and filled with numerous illustrative examples throughout, Two and Three Dimensional Calculus: with Applications in Science and Engineering assumes no prior knowledge of partial differentiation or vectors and explains difficult concepts with easy to follow examples. Rather than concentrating on mathematical structures, the book describes the development of techniques through their use in science and engineering so that students acquire skills that enable them to be used in a wide variety of practical situations. It also has enough rigor to enable those who wish to investigate the more mathematical generalizations found in most mathematics degrees to do so. Assumes

no prior knowledge of partial differentiation, multiple integration or vectors Includes easy-to-follow examples throughout to help explain difficult concepts Features end-of-chapter exercises with solutions to exercises in the book. Two and Three Dimensional Calculus: with Applications in Science and Engineering is an ideal textbook for undergraduate students of engineering and applied sciences as well as those needing to use these methods for real problems in industry and commerce.

Vector Analysis Springer Science & Business Media

This book gives a comprehensive and thorough introduction to ideas and major results of the theory of functions of several variables and of modern vector calculus in two and three dimensions. Clear and easy-to-follow writing style, carefully crafted examples, wide spectrum of applications and numerous illustrations, diagrams, and graphs invite students to use the textbook actively, helping them to both enforce their understanding of the material and to brush up on necessary technical and computational skills. Particular attention has been given to the material that some students find challenging, such as the chain rule, Implicit Function Theorem, parametrizations, or the Change of Variables Theorem.

Tensor Analysis with Applications in Mechanics Springer

"Devoted to fully worked out examples, this unique text constitutes a self-contained, introductory course in vector analysis. Topics include vector addition and subtraction, scalar and vector multiplication, and applications of vector analysis to dynamics and physics. 'Numerous examples and solutions. very comprehensive. A handy book.' -- Mathematical Gazette. 1931 edition."--

Vector Calculus Using Mathematica Second Edition Elsevier

Vector calculus is the fundamental language of mathematical physics. It pro vides a way to describe physical quantities in three-dimensional space and the way in which these quantities vary. Many topics in the physical sciences can be analysed mathematically using the techniques of vector calculus. These top ics include fluid dynamics, solid mechanics and electromagnetism, all of which involve a description of vector and scalar quantities in three dimensions. This book assumes no previous knowledge of vectors. However, it is assumed that the reader has a knowledge of basic calculus, including differentiation, integration and partial differentiation. Some knowledge of linear algebra is also required, particularly the concepts of matrices and determinants. The book is designed to be self-contained, so that it is suitable for a pro gramme of individual study. Each of the eight chapters introduces a new topic, and to facilitate understanding of the material, frequent reference is made to physical applications. The physical nature of the subject is clarified with over sixty diagrams, which provide an important aid to the comprehension of the new concepts. Following the introduction of each new topic, worked examples are provided. It is essential that these are studied carefully, so that a full un derstanding is developed before moving ahead. Like much of mathematics, each section of the book is built on the foundations laid in the earlier sections and chapters.

Calculus: Calculus of several variables with applications to probability and vector analysis Prentice Hall

Sir Isaac Newton, one of the greatest scientists and mathematicians of all time, introduced the notion of a vector to define the existence of gravitational forces, the motion of the planets around the sun, and the motion of the moon around the earth. Vector calculus is a fundamental scientific tool that allows us to investigate the origins and evolution of space and time, as well as the origins of gravity, electromagnetism, and nuclear forces. Vector calculus is an essential language of mathematical physics, and plays a vital role in differential geometry and studies related to partial differential equations widely used in physics, engineering, fluid flow, electromagnetic fields, and other disciplines. Vector calculus represents physical quantities in two or three-dimensional space, as well as the variations in these quantities. The machinery of differential geometry, of which vector calculus is a subset, is used to understand most of the analytic results in a more general form. Many topics in the physical sciences can be mathematically studied using vector calculus techniques. This book is designed under the assumption that the readers have no prior knowledge of vector calculus. It begins with an introduction to vectors and scalars, and also covers scalar and vector products, vector differentiation and integrals, Gauss's theorem, Stokes's theorem, and Green's theorem. The MATLAB programming is given in the last chapter. This book includes many illustrations, solved examples, practice examples, and multiple-choice questions.

Tensor and Vector Analysis Courier Corporation

This text was designed as a short introductory course to give students the tools of vector algebra and calculus, as well as a brief glimpse into the subjects' manifold applications. 1957 edition. 86 figures.

A History of Vector Analysis Courier Corporation

Vector calculus is the fundamental language of mathematical physics. It pro vides a way to describe physical quantities in three-dimensional space and the way in which these quantities vary. Many topics in the physical sciences can be analysed mathematically using the techniques of vector calculus. These top ics include fluid dynamics, solid mechanics and electromagnetism, all of which involve a description of vector and scalar quantities in three dimensions. This book assumes no previous knowledge of vectors. However, it is assumed that the reader has a knowledge of basic calculus, including differentiation, integration and partial differentiation. Some knowledge of linear algebra is also required, particularly the concepts of matrices and determinants. The book is designed to be self-contained, so that it is suitable for a pro gramme of individual study. Each of the eight chapters introduces a new topic, and to facilitate understanding of the material, frequent reference is made to physical applications. The physical nature of the subject is clarified with over sixty diagrams, which provide an important aid to the comprehension of the new concepts. Following the introduction of each new topic, worked examples are provided. It is essential that these are studied carefully, so that a full un derstanding is developed before moving ahead. Like much of mathematics, each section of the book is built on the foundations laid in the earlier sections and chapters.

Elementary Vectors Courier Corporation

Prize-winning study traces the rise of the vector concept from the discovery of complex numbers through the systems of hypercomplex numbers to the final acceptance around 1910 of the modern system of vector analysis.

Elementary Vector Calculus and Its Applications with MATLAB Programming McGraw Hill Professional

Aiming to "modernise" the course through the integration of Mathematica, this publication introduces students to its multivariable uses, instructs them on its use as a tool in simplifying calculations, and presents introductions to geometry, mathematical physics, and kinematics. The authors make it clear that Mathematica is not algorithms, but at the same time, they clearly see the ways in

which Mathematica can make things cleaner, clearer and simpler. The sets of problems give students an opportunity to practice their newly learned skills, covering simple calculations, simple plots, a review of one-variable calculus using Mathematica for symbolic differentiation, integration and numerical integration, and also cover the practice of incorporating text and headings into a Mathematica notebook. The accompanying diskette contains both Mathematica 2.2 and 3.0 version notebooks, as well as sample examination problems for students, which can be used with any standard multivariable calculus textbook. It is assumed that students will also have access to an introductory primer for Mathematica.