Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics)

By David Lovelock, Hanno Rund, Mathematics

Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) By David Lovelock, Hanno Rund, Mathematics

The aim of this book is to present a self-contained, reasonably modern account of tensor analysis and the calculus of exterior differential forms, adapted to the needs of physicists, engineers, and applied mathematicians. In the later, increasingly sophisticated chapters, the interaction between the concept of invariance and the calculus of variations is examined. This interaction is of profound importance to all physical field theories.

Beginning with simple physical examples, the theory of tensors and forms is developed by a process of successive abstractions. This enables the reader to infer generalized principles from concrete situations — departing from the traditional approach to tensors and forms in terms of purely differential-geometric concepts.

The treatment of the calculus of variations of single and multiple integrals is based *ab initio* on Carathéodory's method of equivalent integrals. Subsequent material explores the effects of invariance postulates on variational principles, focusing ultimately on relativistic field theories. Other discussions include:
• integral invariants
• simple and direct derivations of Noether's theorems
• Riemannian spaces with indefinite metrics

The emphasis in this book is on analytical techniques, with abundant problems, ranging from routine manipulative exercises to technically difficult problems encountered by those using tensor techniques in research activities. A special effort has been made to collect many useful results of a technical nature, not generally discussed in the standard literature. The Appendix, newly revised and enlarged for the Dover edition, presents a reformulation of the principal concepts of the main text within the terminology of current global differential geometry, thus bridging the gap between classical tensor analysis and the fundamentals of more recent global theories.

[⬇] **Download** Tensors, Differential Forms, and Variational Princ ...pdf

Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics)

By David Lovelock, Hanno Rund, Mathematics

Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) By David Lovelock, Hanno Rund, Mathematics

The aim of this book is to present a self-contained, reasonably modern account of tensor analysis and the calculus of exterior differential forms, adapted to the needs of physicists, engineers, and applied mathematicians. In the later, increasingly sophisticated chapters, the interaction between the concept of invariance and the calculus of variations is examined. This interaction is of profound importance to all physical field theories.

Beginning with simple physical examples, the theory of tensors and forms is developed by a process of successive abstractions. This enables the reader to infer generalized principles from concrete situations — departing from the traditional approach to tensors and forms in terms of purely differential-geometric concepts.

The treatment of the calculus of variations of single and multiple integrals is based *ab initio* on Carathéodory's method of equivalent integrals. Subsequent material explores the effects of invariance postulates on variational principles, focusing ultimately on relativistic field theories. Other discussions include:

• integral invariants
• simple and direct derivations of Noether's theorems
• Riemannian spaces with indefinite metrics

The emphasis in this book is on analytical techniques, with abundant problems, ranging from routine manipulative exercises to technically difficult problems encountered by those using tensor techniques in research activities. A special effort has been made to collect many useful results of a technical nature, not generally discussed in the standard literature. The Appendix, newly revised and enlarged for the Dover edition, presents a reformulation of the principal concepts of the main text within the terminology of current global differential geometry, thus bridging the gap between classical tensor analysis and the fundamentals of more recent global theories.

Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) By David Lovelock, Hanno Rund, Mathematics Bibliography

• Sales Rank: #89499 in Books
• Published on: 1989-04-01
• Released on: 1989-04-01
• Original language: English
• Number of items: 1
• Dimensions: 8.51" h x .73" w x 5.40" l, .85 pounds
• Binding: Paperback
• 400 pages

Download and Read Free Online Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) By David Lovelock, Hanno Rund, Mathematics

Editorial Review

Users Review

From reader reviews:

Melissa Wilcox:

Book is usually written, printed, or highlighted for everything. You can know everything you want by a book. Book has a different type. As we know that book is important issue to bring us around the world. Close to that you can your reading proficiency was fluently. A reserve Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) will make you to possibly be smarter. You can feel considerably more confidence if you can know about every thing. But some of you think in which open or reading some sort of book make you bored. It is not make you fun. Why they can be thought like that? Have you in search of best book or acceptable book with you?

Johnny Powers:

The particular book Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) has a lot of knowledge on it. So when you make sure to read this book you can get a lot of benefit. The book was written by the very famous author. Tom makes some research ahead of write this book. This specific book very easy to read you can find the point easily after reading this article book.

Diana Chung:

In this period globalization it is important to someone to acquire information. The information will make anyone to understand the condition of the world. The condition of the world makes the information quicker to share. You can find a lot of recommendations to get information example: internet, magazine, book, and soon. You can see that now, a lot of publisher that print many kinds of book. Often the book that recommended to you is Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) this reserve consist a lot of the information of the condition of this world now. This kind of book was represented how do the world has grown up. The dialect styles that writer use for explain it is easy to understand. The particular writer made some study when he makes this book. This is why this book acceptable all of you.

Arthur Reaves:

Many people spending their period by playing outside using friends, fun activity having family or just watching TV 24 hours a day. You can have new activity to shell out your whole day by looking at a book. Ugh, do you think reading a book can really hard because you have to use the book everywhere? It fine you can have the e-book, getting everywhere you want in your Mobile phone. Like Tensors, Differential Forms,

and Variational Principles (Dover Books on Mathematics) which is obtaining the e-book version. So , try out this book? Let's observe.

Download and Read Online Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) By David Lovelock, Hanno Rund, Mathematics #5P7GB68SH41

Read Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) By David Lovelock, Hanno Rund, Mathematics for online ebook

Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) By David Lovelock, Hanno Rund, Mathematics Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) By David Lovelock, Hanno Rund, Mathematics books to read online.

Online Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) By David Lovelock, Hanno Rund, Mathematics ebook PDF download

Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) By David Lovelock, Hanno Rund, Mathematics Doc

Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) By David Lovelock, Hanno Rund, Mathematics Mobipocket

Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) By David Lovelock, Hanno Rund, Mathematics EPub

5P7GB68SH41: Tensors, Differential Forms, and Variational Principles (Dover Books on Mathematics) By David Lovelock, Hanno Rund, Mathematics