# Basic Training In Mathematics: A Fitness Program For Science Students

## Synopsis

Based on course material used by the author at Yale University, this practical text addresses the widening gap found between the mathematics required for upper-level courses in the physical sciences and the knowledge of incoming students. This superb book offers students an excellent opportunity to strengthen their mathematical skills by solving various problems in differential calculus. By covering material in its simplest form, students can look forward to a smooth entry into any course in the physical sciences.

## Book Information

File Size: 6445 KB

Print Length: 381 pages

Page Numbers Source ISBN: 0306450364

Publisher: Springer; 1995 edition (December 20, 2013)

Publication Date: December 20, 2013

Sold by:Â  Digital Services LLC

Language: English

ASIN: B00N3LANO6

Text-to-Speech:  Enabled

X-Ray:     Not Enabled

Word Wise: Not Enabled

Lending: Not Enabled

Enhanced Typesetting:  Not Enabled

Best Sellers Rank: #196,148 Paid in Kindle Store (See Top 100 Paid in Kindle Store)   #8 inÂ Books > Science & Math > Mathematics > Applied > Biomathematics   #23 inÂ Kindle Store > Kindle eBooks > Nonfiction > Science > Physics > Mathematical Physics   #58 inÂ Kindle Store > Kindle eBooks > Nonfiction > Science > Mathematics > Pure Mathematics > Calculus

## Customer Reviews

This is the best book I have found for explaining the math needed by physicists and others in the hard sciences. Shankar uses a very conceptual approach to the mathematics without dwelling on proofs - leaving the reader with an understanding of the mathematics involved. He also tackles difficult ideas like: why are complex numbers necessary and where do they come from? Most books simply assume these ideas and run off into the wild blue yonder with some proofs to give a veneer of completeness, whereas Shankar tries to give a conceptual underpinning that is invaluable when he tackles advanced topics (such as contour integration). His approach throughout is conceptual and pragmatic - giving you a solid understanding for the math you will actually use. Though it is designed for undergraduates, I would also recommend it to anyone either reviewing their math or (re)learning math they should have already known. I used this book to study for the math section of my physics PhD. qualifier and I only wish that I had stumbled across it sooner - it would have made many of my physics courses a lot easier.

This was the textbook used for a class I took several years ago, and since then I've really grown to appreciate what a great foundation in mathematical methods it gave me. The text is clear and concise, the problems challenging and illuminating. Shankar writes with a dry sense of humor that makes his book anything but dry reading for the student (a frequent problem I've had with other math textbooks). I've found this book an invaluable reference on numerous occasions. I think the best praise that I can give is that it provided me with a mathematical intuition for much of what I learned in physics, especially Quantum Mechanics. Shankar ingeniously sets up many problems so that when the student comes across the topics in later study, he or she not only already understands the mathematical basis for the physical laws but also can guess where the arguments are going next. Using this book and Shankar's Quantum Mechanics textbook in a later course made for one of the most rewarding intellectual explorations I have ever had.

This book tries to cover pretty much all the mathematical methods you'd need in college-level physics if you haven't had much experience with them before. The trouble is that that is a LOT of math, and trying to cover that in a book this size is just asking for trouble.If you don't know any of this stuff, this book is going to kill you. It covers multivariable and vector calculus, differential equations, linear algebra, functions of a complex variable, etc. That is maybe 4-5 different math courses. The idea is that physicists don't really need the rigor of theoretical math, they just need to learn the "tools" so they can do the practical, applied stuff.This book is good if you already have a general idea of these concepts and just want to get the important parts.

Wish I had come across this book earlier. Other undergraduate math refresher/review books are either too basic or too formulaic (if I had wanted a table of functions I would have bought one). The stress is clearly on concepts, followed by techniques. The book is a great review of all the oohs and aahs of undergraduate and high school mathematics that you have forgotten over the years. I graduated from high school 15 years ago and by page 3 I was doing derivatives from first principles.

Richard Courant's "What is Mathematics?" would make an excellent companion to this book. For example I complemented the first two chapters on calculus with the chapters on number systems and, limits and continuity from Courant's book and I truly felt that my calculus review was complete.

This is a great book for someone who did his undergraduate studies in Engineering or Chemistry (like me) and now is entering a Physics program. It is a great review of most of the important stuff in Math for Physics, without the boring mathematical style: straight to the point with relevant examples.Another good point is that it has problems scattered INSIDE the text, which enforce you to do them. Most of them are interesting and in a physical context (as: Lorentz transformations - as an example of a "rotation" matrix , Maxwell equations - an exercise in vector analysis etc.)In addition, I don't agree with the reviewers who claim that you cannot actually LEARN new topics from it. I never learned "complex functions" during my undergrad, and actually managed to learn it with Shankar - at least the things important to a physicist.A drawback: a chapter about group theory could be useful.

The text presents in remarkably clear and concise fashion exactly those areas of mathematics required for the physical sciences, especially physics. The sections on linear algebra, vector spaces, Hilbert space, Fourier analysis and differential equations build and articulate elegantly to open a first window on the vistas of quantum mechanics. Problems are likewise chosen with care to assist the student in raising himself to the next level of understanding, section by section in a well-thought out sequence. The only problems are with visual layout of the text and occasional typographical errors (one in a complex differential equation that forms the basis of a problem). I have since gone back to this text many times as a refresher.

Training: The Complete Guide To Housebreak Your Puppy in Just 7 Days: puppy training, dog training, puppy house breaking, puppy housetraining, house ... training, puppy training guide, dog tricks) Puppy Training Guide 4th Edition: The Ultimate handbook to train your puppy in obedience, crate training and potty training (Training manual, Puppy Development, ... Training, Tracking, Retrieving, Biting) Puppy Training: 10 Worst Puppy Training Mistakes That Can Ruin Your Dog (And How To Train Them Right) (puppy training, dog training, puppy house breaking, ... training a puppy, how to train your puppy) Puppy Training: The Ultimate Guide to Housebreak Your Puppy in Just 7 Days: puppy training, dog training, puppy house breaking, puppy housetraining, house ... training, puppy training guide, dog tricks) Body by Science: A Research Based Program for Strength Training, Body building, and Complete Fitness in 12 Minutes a Week Supervisor Training Program (STP) Unit 2 Participants Manual: Communication (AGC's Supervisory Training Program) Bigger Leaner Stronger: The Simple Science of Building the Ultimate Male Body (Bodybuilding Books, Building Muscle, Weightlifting, Fitness Training, Weight Training, Lose Fat Book 1) PUPPY TRAINING: DOG TRAINING: Crash Course in Training Your Dog in Days, Housebreak and Obedience Puppy Training Guide Book Puppy Training: How to Housebreak Your Puppy In Just 7 Days (puppy training, dog training, puppy house breaking, puppy housetraining, house training a puppy,) Brain Games for Dogs: Training, Tricks and Activities for your Dog's Physical and Mental wellness( Dog training, Puppy training,Pet training books, Puppy ... games for dogs, How to train a dog Book 1) Potty Training In 3 Days: Quick And Easy Guide To Potty Training Your Toddler In As Short As 3 Days (potty training, toddlers, toddler, toilet training) Puppy Training : How to Housebreak Your Puppy in Just 7 Days: (Puppy Training, Dog Training, How to Train A Puppy, How To Potty Train A Puppy, How To Train A Dog, Crate Training) Fitness: The Complete Guide, Official Text for Issa International Sports Science Association Certification Course for Fitness Trainers The 90-Day Home Workout Plan: A Total Body Fitness Program for Weight Training, Cardio, Core & Stretching Running: The Ultimate Guide To Running For Weight Loss, Health And Fitness - Includes Easy To Follow Training Plans For Beginners (How to Run, Jogging, Marathon Training)