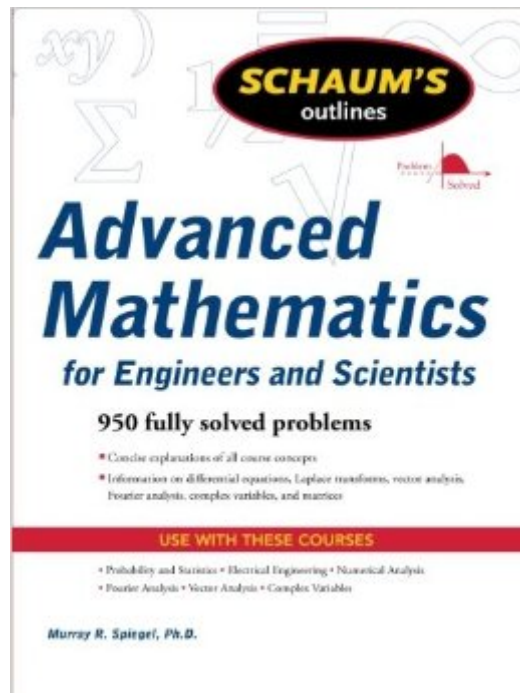


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# Schaum's Outline Of Advanced Mathematics For Engineers And Scientists (Schaum's Outlines)



## Synopsis

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## Book Information

Series: Schaum's Outlines

Paperback: 432 pages

Publisher: McGraw-Hill Education; 1 edition (October 20, 2009)

Language: English

ISBN-10: 0071635408

ISBN-13: 978-0071635400

Product Dimensions: 8.1 x 0.7 x 10.8 inches

Shipping Weight: 2.5 pounds (View shipping rates and policies)

Average Customer Review: 4.5 out of 5 stars [See all reviews](#) (41 customer reviews)

Best Sellers Rank: #61,985 in Books (See Top 100 in Books) #13 in [Books > Education & Teaching > Schools & Teaching > Curriculum & Lesson Plans > STEM Education](#) #20 in [Books > Science & Math > Mathematics > Applied > Differential Equations](#) #59 in [Books > Education & Teaching > Schools & Teaching > Student Life](#)

## Customer Reviews

This outline covers just about all of the applied mathematics that upper level undergraduate and graduate engineers need to know to solve problems. It is a great reference, but its scope is so broad that you really can't use it for anything other than review. The author apparently recognizes that an outline this broad in scope cannot be that instructive either, and limits the introductory portion of each chapter to relevant tables and equations that an engineer/scientist must know to work problems. It is assumed you have other books to function as detailed tutorials. I have to say that the

differential equations portions of this outline were far superior to the individual Schaum's outlines for those subjects. Also, the Fourier series and Fourier integral chapters were a bit too theoretical for most engineers, as many of the problems involved proofs or demonstrating properties rather than using the theory to solve problems. However, most chapters have a good mix of exercises - a few proofs, straight numerical problems, and applied exercises such as problems on circuit analysis, for example. If you need a broad overview of the mathematics that an engineer must know from a problem-solving perspective, with small lessons on each topic, might I also suggest "Engineering Mathematics" and "Advanced Engineering Mathematics" by Stroud. Both of those books lead you by the hand and cover everything from high school through graduate school-level mathematics from an engineer's perspective. This outline would go great with those two books, as this outline can serve as a test of your comprehension of those two books by serving as a source of additional solved problems. I would suggest you get this book and keep it around as one of several good references on applied mathematics.

This book goes through all the basics needed to master advanced mathematics. It covers differential equations; linear differential equations; Laplace transformations; vector analysis; multiple, line and surface integrals with the theorems; Fourier series and integrals; gamma and beta functions, Bessel functions, Legendre and orthogonal functions, partial differential equations, complex variables and conformal mapping, complex inversion formula (for Laplace transformations); and matrices. At the beginning is also a review of the basic terms and rules. This is a good book to review to refresh your memory of what you studied in school. If you are in school now, this will be a good supplement. As with other books in this series, there are problems you can work to test your knowledge, but not all of them have the answers printed in the book. This is a little bothersome, but the book is still worth the investment.

I used this book as a text for an applied math course. The presentation of the book is well done. The emphasis was on gaining competency through practice and not on proving rigorous theories per se (though some of that is included). The author worked out in detail many example problems that I found to be helpful. As a caveat, there were MANY typos in the book. A few of the theorems were even stated incorrectly. Some of the answers in the back of the book are incorrect. For at least one homework problem that I know of you are tasked with proving something that is just plain wrong. The end result: lots of wasted time. I found the treatment of linear algebra to be a little outdated; he focuses mainly on properties of determinants and inverses, which these days is not the way to

approach applied linear algebra. I'm more forgiving of these blunders because the book is low priced. All in all it was helpful to me as an aid to learning.

I bought this book for self study and it is amazing. For someone interested in furthering their mathematical knowledge and applying it to their research, it is a must have item. Especially because of its low price and the numerous solved exercises that one can follow and easily learn from. Covers everything from PDE's to conformal mapping and everything in between at an approachable level for non-mathematicians.

This is a great concise mathematical reference manual at a great price. I started using this book for reference to complex integrals in graduate school and have since used it as my primary mathematical reference sources for all the basic mathematical equations I learned while earning my engineering degree. I recommend it to my students (I teach at a university now) and frequently give it as a gift to graduating high school students (relatives and such) planning to pursue math or engineering related degrees in college. Note that it is a true reference manual and one needs to know how to use the equations in the first place in order to use the book. In many cases this requires coursework except for simple topics like equations for areas of different shapes, etc.

It's a perfect book for training and reference. Theory is very short, and instead, it contains a lot of examples with solutions. However, the field 'Advanced mathematics' is so wide, that presumably, a reader will only be interested in parts of it.

This book proved itself useful in a undergraduate math methods class. Murray Spiegel was and is highly regarded as an author of "teach yourself" mathematics texts. If you are struggling with applied mathematics at the undergraduate level I'd highly encourage taking a look at his other publications: Schaum Publishing Co: Theory and Problems of College Algebra (1956) Theory and Problems of Vector Analysis and An Introduction to Tensor Analysis (1959) Theory and Problems of Statistics (1961) Theory and Problems of Advanced Calculus (1963) Theory and Problems of Complex Variables (1964) Theory and Problems of Laplace Transforms (1965) Theory and Problems of Theoretical Mechanics (1967) Theory and Problems of Mathematical Handbook of Formulas and Tables (1968) Theory and Problems of Real Variables (1969) Theory and Problems of Advanced Mathematics for Engineers and Scientists (1971) Theory and Problems of Finite Differences and Difference Equations (1971) Theory and Problems of Fourier Analysis with Applications to

Boundary-Value Problems (1974) Theory and Problems of Probability and Statistics (1975) Nearly all of the above were reprinted at later dates (and a few 2nd and 3rd editions) but excepting Mathematical Handbook of Formulas and Tables which had a few mistakes in the first edition and the obligatory tabulations I'd recommend trying to find the earliest available printing as the quality is typically higher. My particular favorite is Complex Variables. Prentice Hall: Applied Differential Equations (1963, 1967, 1980)

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