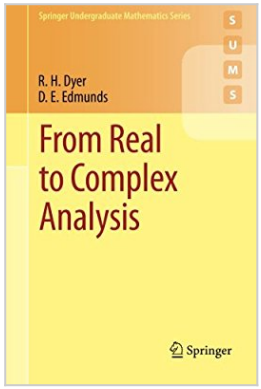

From Real to Complex Analysis (Springer Undergraduate Mathematics Series)

By R. H. Dyer, D. E. Edmunds

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The purpose of this book is to provide an integrated course in real and complex analysis for those who have already taken a preliminary course in real analysis. It particularly emphasises the interplay between analysis and topology.

Beginning with the theory of the Riemann integral (and its improper extension) on the real line, the fundamentals of metric spaces are then developed, with special attention being paid to connectedness, simple connectedness and various forms of homotopy. The final chapter develops the theory of complex analysis, in which emphasis is placed on the argument, the winding number, and a general (homology) version of Cauchy's theorem which is proved using the approach due to Dixon.

Special features are the inclusion of proofs of Montel's theorem, the Riemann mapping theorem and the Jordan curve theorem that arise naturally from the earlier development. Extensive exercises are included in each of the chapters, detailed solutions of the majority of which are given at the end. *From Real to Complex Analysis* is aimed at senior undergraduates and beginning graduate students in mathematics. It offers a sound grounding in analysis; in particular, it gives a solid base in complex analysis from which progress to more advanced topics may be made.

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From Real to Complex Analysis (Springer Undergraduate Mathematics Series) By R. H. Dyer, D. E. Edmunds Bibliography

- Sales Rank: #2758727 in Books
- Published on: 2014-05-31
- Released on: 2014-05-31
- Original language: English
- Number of items: 1
- Dimensions: 9.25" h x .78" w x 6.10" l, 1.06 pounds
- Binding: Paperback
- 332 pages

Editorial Review

Review

From the book reviews:

“Dyer and Edmunds (both, Univ. of Sussex, UK) developed this work from undergraduate lectures given at the university with the intent of providing an integrated course in real and complex analysis for those who have learned the rudiments of real analysis. Their intentions have been achieved. … Nearly every section has a collection of exercises. … Summing Up: Recommended. Upper-division undergraduates and graduate students.” (D. Robbins, Choice, Vol. 52 (3), November, 2014)

“A number of questions which are common, as well as those which are differently explaned in real and complex analysis are discussed in the book. The material is presented on fairly rigorous level and illustrated by useful examples. The reader could improve his/her understanding of several notions of real and complex analysis studying the book. The series of exercises are useful in this sense too.” (Sergei V. Rogosin, zbMATH, Vol. 1296, 2014)

From the Back Cover

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About the Author

Both authors taught at the University of Sussex for many years. Robin Dyer’s main research contributions are to the theory of the Navier-Stokes equations; those of David Edmunds lie in functional analysis, interpolation theory and function spaces.

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