which is focused on uniform convergence of series of functions. After explaining the relationship between absolute and uniform convergence of such series, the authors prove Dirichlet's and Abel's tests for uniform convergence, which are analogous to the tests for series from Chapter 2. As in the previous chapters, there are ample examples with some of them used several times in order to present different ways of showing that a series is or isn't uniformly convergent. Sufficient conditions for uniform convergence of series, such as the Weierstrass M-Test and Dini's theorem for convergence of series of continuous functions on a compact set, are included. Karl Weierstrass (1815-1897) is a towering figure in the theory of series and the authors present in nicely fitted compartments of the book two of his celebrated results: the approximation theorem which states that continuous function on a closed interval can be uniformly approximated by a sequence of polynomials, and his example of an everywhere continuous and nowhere differentiable function.

The final chapter is the largest and is devoted to power series and Taylor series. For all elementary functions the corresponding Taylor series are calculated. Common applications of Taylor series included are numerical approximations, calculations of limits (no L'Hôpital's rule as usual) and solution of ordinary differential equations.

Two main problems are involved when dealing with number series: to determine whether the series converges, and, if it does, to what sum. The main criticism one can point at the authors is that this second aspect of the theory of infinite series is entirely suppressed in favour of the first. We don't find in the book the exact value even of the most celebrated Euler series $\sum_{n=1}^{\infty} \frac{1}{n^2}$. This so-called Basel problem, with solution $\pi^2/6$ found by Euler (1707-1783) in 1734, was a great motivation in the development of mathematics. Throughout the text there are other brief historical remarks which make the reading more enjoyable.

There is no shortage of exercises and problems, proposed at the end of each chapter, with detailed solutions provided as an electronic supplement of the book. Among the exercises there are some classic results but unfortunately they are not named, so the student misses out valuable information. For instance, the convergence of the important sequence $1 + \frac{1}{2} + \ldots + \frac{1}{n} - \ln n$ is relegated to an exercise, without any mention that its limit is the well-known Euler-Mascheroni constant. Nevertheless, university students working through the exercises will gain solid grounding in that part of analysis concerned with convergence of sequences and series. This book is primarily to be recommended to them.

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A student's guide to Laplace transforms by Daniel Fleisch, pp. 218, £17.99 (paper), ISBN 978-1-00909-629-4, Cambridge University Press (2022)

This book aims to give students an intuitive understanding of Laplace transforms and their physical meaning, and I think that in this it succeeds very well.

It makes no claims to cover advanced abstract theory, and the level of mathematical sophistication expected of the reader is not high, but within these limits the material is covered with appropriate rigour. The language is informal and accessible but accurate, and it reads well. The emphasis is on practicalities, but complications are not overlooked. The explanations are extremely clear and detailed

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and are obviously born of great familiarity with the subject and the difficulties students often find with these methods.

The first chapter gives a good introduction to Laplace transforms and their relation to Fourier transforms. The second chapter contains very detailed derivations of the Laplace transforms of standard functions, with explanations of how these results can be rationalised. There are many diagrams and graphs to aid understanding, and the student should come away with a good intuition for the results. The diagrams convey their points clearly, the level of detail requiring quite close attention but not obscuring the main points. The diagrams and graphs are very well produced and I detected very few errors.

The one small downside of the book is that, as the author applies the same approach and the same level of detail to each function, there is a lot of repetition. The able student might be tempted to omit much of this and hence miss some important points, and the less able student will not find an alternative point of view if the first one was found to be less than helpful.

The later chapters of the book cover properties and applications of the Laplace transform, and the final chapter introduces the Z-transform. Here the material is covered more succinctly, but still with enough explanation to promote an intuitive understanding. The range of applications covered includes the usual ones; the chapter starts with ODEs illustrated by electrical and mechanical oscillators, moves on to PDEs with examples involving Laplace's equation, the wave equation and the diffusion equation, and ends with coupled differential equations illustrated by an example on transmission lines. These examples, although standard, are all important ones, and the discussion should engage both physical scientists and engineers.

There are problems for the reader at the end of each chapter which give practice on the relevant material. They cover the ground comprehensively and anyone who does them all should be able to claim a good working knowledge of the subject. Some of them require a lot of manipulation, but they are all fairly routine and do not attempt to challenge the reader by taking the material any further. The worked solutions on the website are very thorough, and even the least confident student should be able to understand the problems with their aid.

The book manages to cover the subject without much discussion of complex contour integration, no mention of residue calculus etc., and a rather brief introduction to poles. However, there is nothing misleading, and, as the author acknowledges, at a practical level inversion is usually done by recognising standard functions, at least in a first course.

The book comes with a comprehensive website with video tutorials, worked answers to the end-of-chapter problems, and other supporting material. For example, with reference to the point made above, there is supplementary material on contour integration which includes references to several standard maths methods texts. Again, this material is produced to a very high standard, and students should find it a useful complement to the book.

I would recommend this book very highly for advanced first years, and second and third year undergraduates in the physical sciences or engineering who want to get a better feel for the practical uses of Laplace transforms.

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