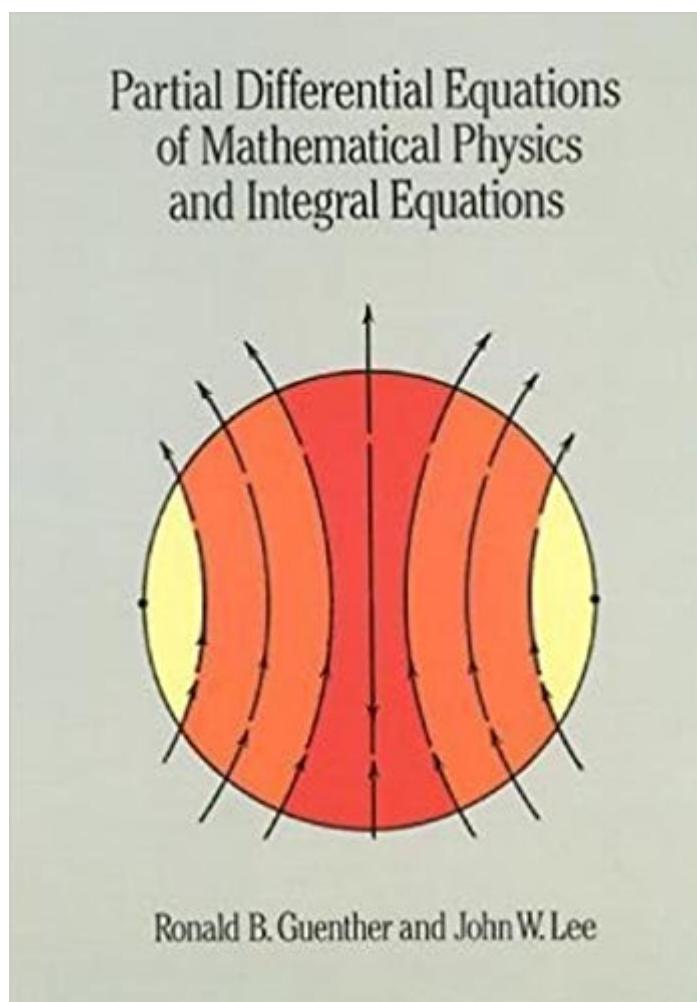


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Partial Differential Equations Of Mathematical Physics And Integral Equations (Dover Books On Mathematics)



Synopsis

This book was written to help mathematics students and those in the physical sciences learn modern mathematical techniques for setting up and analyzing problems. The mathematics used is rigorous, but not overwhelming, while the authors carefully model physical situations, emphasizing feedback among a beginning model, physical experiments, mathematical predictions, and the subsequent refinement and reevaluation of the physical model itself. Chapter 1 begins with a discussion of various physical problems and equations that play a central role in applications. The following chapters take up the theory of partial differential equations, including detailed discussions of uniqueness, existence, and continuous dependence questions, as well as techniques for constructing conclusions. Specifically, Chapters 2 through 6 deal with problems in one spatial dimension. Chapter 7 is a detailed introduction to the theory of integral equations; then Chapters 8 through 12 treat problems in more spatial variables. Each chapter begins with a discussion of problems that can be treated by elementary means, such as separation of variables or integral transforms, and which lead to explicit, analytical representations of solutions. The minimal mathematical prerequisites for a good grasp of the material in this book are a course in advanced calculus, or an advanced course in science or engineering, and a basic exposure to matrix methods. Students of mathematics, physics, engineering, and other disciplines will find here an excellent guide to mathematical problem-solving techniques with a broad range of applications. For this edition the authors have provided a new section of Solutions and Hints to selected Problems. Suggestions for further reading complete the text.

Book Information

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Customer Reviews

It is a fully information-coverage of special field in mathematics book. However, I only need some parts of chapters as belows: Potential Theory, Parabolic Equations, Hyperbolic Equations. Anyway, thanks for your services!

Clear fundamental introduction of PDE to beginners in the field.

Not too bad, causing confusion for several chapters

It is a very good and comprehensive textbook for beginner to intermediate students in colleges and graduate schools of PDE.

I hate this book. There are so many typos and it is difficult to follow. I wish we had a different book for our PDE class.

This is one of the finest textbooks on applied mathematics. It is appropriate for a wide range of levels and disciplines. A moderately paced graduate class can finish most of the chapters in a full year. The first two chapters cover material that is difficult to find elsewhere and nowhere is it better handled. The real boon to this book is the constant integration of physical reasoning with solid mathematical theory. To be sure, many of the more complicated ideas are only mentioned, but the later chapters pick these up and go much further. It covers basic heat and wave applications, but also Brownian motion and gas dynamics. A solid calculus background is needed, which includes vector calculus and convergence issues. Eigenvalues and some functional analysis are needed. Many books on elementary partial differential equations spend all their time on the big three: heat, wave and Laplace. This is too low a level for any graduate class and doesn't create the excitement other applications provide. On the other hand, this book is accessible to many people. Often, graduate texts are thoroughly awash with Sobolev spaces and weak convergence and the physical problem, i.e., the actual model, is all but ignored. This classic text is the bridge between elementary and advanced applied mathematics. In some respects, it is self-contained. Guenther and Lee have written an indispensable book.

Book came in excellent condition and was shipped quickly. Highly recommend this seller.

This book is one of the worse I ever see representing the mathematics for physics, the mathematics and the physics both was not explained as it should, the authors are not familiar at all with the concept of physics make their material in the book related to this subject unclear and vague. The book has too many gaps as I see it has too many jumps when a physical phenomena represented using mathematics. Physical concept was most of the times not even mention, and I believe that the author should stick only with mathematics since they try to explain physics they don't really familiar with.

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