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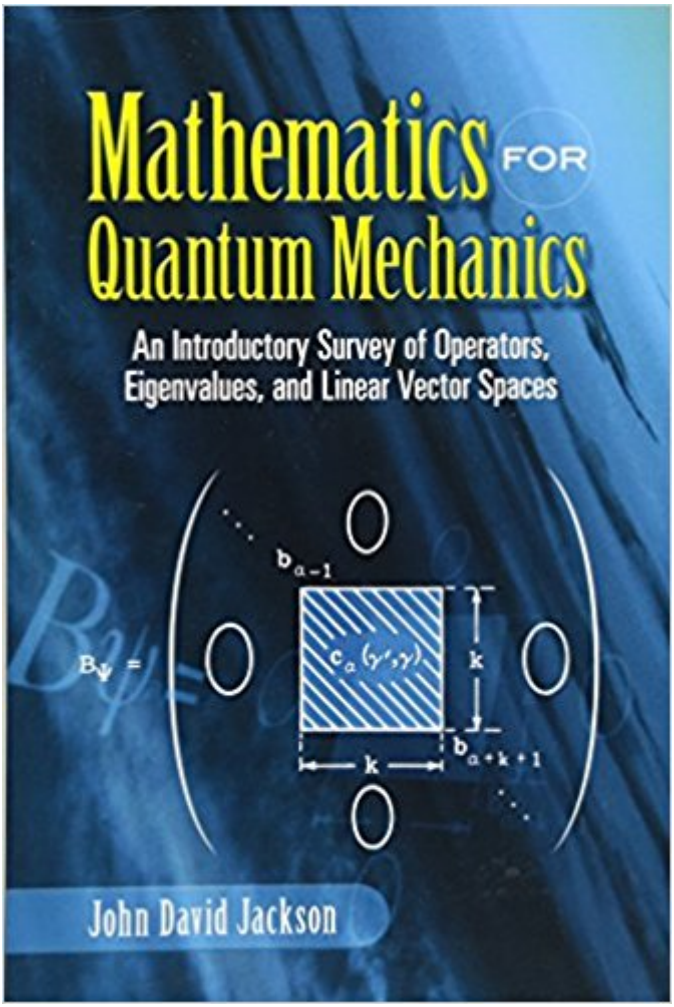
Mathematics For Quantum Mechanics: An Introductory Survey Of Operators, Eigenvalues, And Linear Vector Spaces (Dover Books On Mathematics)

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Synopsis

Advanced undergraduates and graduate students studying quantum mechanics will find this text a valuable guide to mathematical methods. Emphasizing the unity of a variety of different techniques, it is enduringly relevant to many physical systems outside the domain of quantum theory.Concise in its presentation, this text covers eigenvalue problems in classical physics, orthogonal functions and expansions, the Sturm-Liouville theory and linear operators on functions, and linear vector spaces. Appendixes offer useful information on Bessel functions and Legendre functions and spherical harmonics. This introductory text's teachings offer a solid foundation to students beginning a serious study of quantum mechanics.

Book Information

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Customer Reviews

John David Jackson is Professor Emeritus at the University of California, Berkeley.

Great book for obtaining/reviewing the math skills needed for quantum mechanics. I love the message: the mathematics needed for quantum mechanics is relevant for many areas of classical physics. In fact, the math was mostly developed in the context of classical physics, enabling quantum mechanics to develop at a remarkable pace once the concepts were discovered. For $10, it's a great deal for anyone learning quantum mechanics.

This is a brief but good introduction to operators, eigenvalues, and linear vector spaces. The

discussion starts out with motivating the study of eigenvalues, which emerged from problems such as that of a vibrating string, and other problems with boundary conditions. The book then goes on to consider orthogonal functions and expansions, Sturm-Liouville theory and linear operators, and the last chapter is on vector spaces. Plus there are two appendices, one on Bessel cylindrical functions and the other on Legendre functions and spherical harmonics.The vector chapter is over 40 pages and about half of the book, the other chapters being relatively brief, but enough to get your feet wet. I especially enjoyed the chapter on Sturm-Liouville theory, which I didn't know much about before, but had heard about for many years. For a little primer it was fine for that purpose and was money well spent, considering that the book was only eight bucks (with a one dollar discount for paperbacks at B & N).I'm a big fan of the Dover paperbacks which often reprint quality classics at a fraction of what you'd pay for a modern text, and which are often better. Some advanced books in math and engineering these days can be $80 to $120, so Dover paperbacks at ten to fifteen dollars are a bargain. I have many of the Dover books in math and the sciences and consider them the foundation of that part of my library, even if I own other more expensive, more recent volumes.

I know the Math of QM, and this book didn't properly explain any of it. Its a waste of money and time.

Unless you have many, many years of advanced mathematics under your belt don't bother. Also, there are no examples actually pertaining to QM.

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