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REVIEWS

A Mathematical Kaleidoscope: Applications in Industry, Business and Science. By BRIAN CONOLLY and STEVEN VAJDA (Albion, 1995) $25.00

This book comprises a series of essays on a wide variety of topics, all related in some way to applied mathematics. The ideas explored within a chapter are linked, some to a greater extent than others, but the chapters themselves concentrate on distinct areas. This is demonstrated by the chapter titles, which include finance, games, mathematical programming, organisation and management, mathematical teasers and triangular geometry.

The chapter on finance is the one with the most obvious actuarial connection, and contains two sections. The first describes a scheme introduced in central Europe after World War I, designed to enable savers to finance house purchase. The second is of more direct relevance today, as it explores some problems in estimating the expected claim under a stop-loss reinsurance contract.

The book involves mathematics at around the graduate level. The authors' range of expertise is impressive, but the breadth of topics covered may be regarded as both a strength and a weakness of the book. Readers with an interest in mathematics, and a sufficient level of understanding, should find something to whet their appetite. A few references are given at the end of many sections throughout the book, for those who want to investigate a particular topic further.

By the same token, however, many readers are likely to skip some sections of the book, either because the topic is not of interest or because the level of mathematical knowledge required is too great. As early as Section 1.1, for example, use is made of probability generating functions, and Section 1.2 refers to the Wronskian of solutions to a differential equation. Any reader who is unfamiliar with the mathematics used may find it difficult to follow the derivation of the results concerned, even if the results themselves are understandable.

The book is laid out well, with just the occasional typesetting error, but the standard of diagrams sometimes leaves much to be desired. Some are perfectly adequate copies of computer print-outs, but others are clearly taken from diagrams drawn and labelled by hand: for example, circles appear to have been traced round the edge of a coin or something similar. Such instances detract from the book's aesthetic appeal — the last network flow diagram 6.3 is a good example of this. The capabilities of graphics software nowadays are such that none of the diagrams would have taken more than a few minutes to create on a computer, which surely would have been preferable.

The notation can occasionally create some confusion. Reading '$N->\infty$' suggests the quantity '$N-$' is greater than infinity, but what is actually meant is that N tends to infinity; i.e. $N\to\infty$. The term $(-1)^n$ has been written $(-)^n$, which I originally took to be a misprint until I found it happened regularly.

The suggested readership given on the back cover of the book is: advanced undergraduates and postgraduates in applied mathematics, statistics and operational research; researchers and applied mathematicians in professional practice; and careers officers. I am somewhat dubious about the last of these groups, but would endorse the others.

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Financial Risk in Insurance. Edited by G. OTTAVIANI (Springer-Verlag, 1995) £52.00

This book contains the five invited contributions to the 3rd International AFIR Colloquium, held in Rome in 1993. The contributions are wide ranging, with an overall emphasis on insurance applications