2[46-01, 65-01]—*An introduction to functional analysis and computational mathematics*, by V. I. Lebedev, Birkhäuser, Boston, MA, 1977, x+255 pp., 24 cm, hardcover, $59.95

As the author writes in the Preface to the English Edition: "The book contains the methods and bases of functional analysis that are directly adjacent to the problems of numerical mathematics and its applications". The book reflects a course given by the author to students at the Moscow Institute for Physics and Technology over several years, and is readily accessible to anyone with a course in real analysis, in ODEs, and in numerical analysis.

The material is organized into just three chapters. Chapter 1 brings the basics of linear metric spaces, using best approximation (and some other extremal problems) to illustrate their use. Chapter 2 covers linear operators and linear functionals, bringing the standard functional analysis material (uniform boundedness principle, Hahn-Banach, though not open mapping/closed graph, but also eigenstructure and resolvent of an operator), and applying it to variational methods for the minimization of quadratic forms, and culminating in a discussion of generalized solutions to second-order elliptic equations. The final chapter deals with iterative methods for the solution of operator equations, including convergence acceleration, solving a corresponding variational problem, and, of course, Newton's method, all in a Banach or Hilbert space setting.

Although the book is based on a course, there are no problems. There are no references given for results which are stated but not proved, but the bibliography is rich enough to supply everything needed (largely from standard Russian books).

This book could easily be improved materially by having it copy-edited by someone wholly conversant with English and English mathematical terminology. While 'Minkowskii' and 'Boltsano' are still recognizable, 'quadrature functional' (for 'quadratic functional') is trickier, as is 'complement' (for 'completion') of a metric space, or 'reversible' (for 'invertible'), or 'diagram' (for 'graph') of a function, and 'Relay ratio' (for 'Rayleigh quotient') or 'Pyphagor' (for 'Pythagoras') is simply unacceptable. There is also the understandable, but often mathematically misleading, haphazard use of the articles 'the' and 'a'. In contrast, the preference for the standard Russian attribution of results, reflected in the names given them, might help to broaden the horizons of students not raised there.

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3[65-01, 65-04]—*Numerical recipes in Fortran* 90: *The art of parallel scientific computing, Volume* 2 *of Fortan numerical recipes, second edition*, by William H. Press, Saul A. Teukolsky, William T. Vetterling and Brian P. Flannery, Cambridge University Press, New York, NY, 1996, xx+551 pp., 25 cm, hardcover, $44.95, software diskette available separately, $39.95

The Numerical Recipes series of books and computer media began appearing in 1986. The media provide library software for general-purpose numerical compu-