neglecting the mathematical exactness. Thus the author develops the theory of representations of finite and infinite groups using the elementary concept of matrix representations, so that there are no prerequisites beyond the undergraduate level. Only representations over an algebraically closed field of characteristic zero are considered, as is most suitable for the applications.

After two introductory chapters on matrices and groups, the author exhibits in Kap. III first the representation theory of finite groups over an algebraically closed field, using partly matrix theory, partly the theory of semi-simple algebras. Next in this chapter comes a section on the representations of continuous groups and their characters, via Lie groups. The rest of this chapter has been altered considerably in this new edition: projective representations are introduced, and a section on the induced representations has been added. In Kap. IV the theory of representations of the symmetric groups is treated in detail, using Young's theory of tableaux. However, deviating from the first edition, the author uses now, instead of Young's "natural representation", the semi-normal and orthogonal representation to find the representing matrices explicitly. In Kap. V the representations of the general linear group, the unimodular group and the unitary group are dealt with, using tensor spaces. The results of Kap. IV are applied to obtain a very explicit description of the representations of the above groups. In Kap. VI the characters of the symmetric group and of the alternating group are computed. The connection between the representations of the symmetric group and the general linear group are exploited farther to find the characters of this group. To obtain the characters and the one-valued representations of the rotation group, the Stiefel-diagrams play the dominating role in Kap. VII. In Kap. VIII the spin-representations of the rotation group are derived via the Clifford-algebra. In addition to a treatment of the spin-representation following Brauer and Weil, a section has been added on Freudenthal's method of obtaining explicitly the spin-representations. The last chapter contains a thorough treatment of the Lorentz-group.

Though this book does not contain any applications of representation theory to physics, it seems that it is excellently suited to a reader, who is interested in the applications, but who also wants to acquire a precise knowledge on the mathematical theory of group-representations.

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Solution of equations and systems of equations, by A.M. Ostrowski. (Academic-Press, New York, London, 1966). xiv + 338 pages. $11.95.

The present book is a considerably revised and enlarged edition of the first edition which appeared in 1960 and which had ix + 202 pages. The number of chapters in the new edition is 29 (11 more than in the first edition) and the number of appendices has also gone up by 5 and the number of pages is xiv + 338. The new chapters which have been added are the following: Chapter 15. The square root iteration Chapter 16. Further discussion of square root iteration. Chapter 17. A general

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theorem on zeros of interpolating polynomials. Chapter 18. Approximation of equations by algebraic equations of a given degree. Asymptotic errors for simple roots. Chapter 23. Further discussion of norms of matrices. $\Delta q(A)$ Chapter 24. An existence theorem for systems of equations. Chapter 25. n-Dimensional generalisation of the Newton-Raphson Method. Statement of the theorems. Chapter 26. n-Dimensional generalisation of the Newton-Raphson method. Proofs of the theorems. Chapter 27. Method of Steepest Descent. Convergence of the procedure. Chapter 28. Method of Steepest Descent. Weakly linear convergence of the ξ_μ. Chapter 29. Method of Steepest Descent Linear Convergence of the ξ_μ.

The appendices which have been added are listed here: L. The determinantal formulas for divided differences. M. Remainder term in interpolation formulas. N. Generalization of Schroder's Series to the case of Multiple Roots. O. Laguerre Iterations. P. Approximation of Equations by Algebraic Equations of a given degree. Asymptotic errors for multiple zeros.

The book contains bibliographical notes for each chapter, which is better than having one bibliography for the whole book. The content of the book contains many interesting results of the author's own researches, often unpublished. The emphasis throughout the book is on methods and their rigorous analysis.

The book has no sets of exercises, like most text-books, but it should be a rich experience for anyone to use this wonderful book as a text in a course. One often comes across a new notation; for example, Runge's notation x^μ for $(x - x_1)\ldots(x - x_\mu)$ was new to the reviewer, but this notation seems to have been used only on page 9 and nowhere else.

The book has a strong imprint of the personality of the author - clear, crisp and precise. It will remain for a long time a standard book both for reference and for study for all those who are interested in the theory or praxis of solutions of equations or systems of equations.

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