I reading a work on pure mathematics or are there physical situations to which these theorems apply, and, if so, what are they? Brief answers to these questions could have been given without unduly lengthening the text and it may be hoped that, in some later edition, this minor defect will be remedied. In the meantime, the expert will be grateful for so clear and condensed a compendium of the thermodynamic properties of a gas in motion.

G. C. McVittie

Höhere Mathematik für Mathematiker, Physiker, Ingenieure. Part VI. *Integration und Reihenentwicklung im Komplexen. Gewöhnliche und partielle Differentialgleichungen.* By R. Rothe and I. Szabó. Stuttgart, Teubner, 1953. 251 pp. 17.60 DM.

This book is a continuation of Rothe's *Höhere Mathematik für Mathematiker, Physiker und Ingenieure.* A further volume is planned dealing with eigenvalue problems and with the calculus of variations.

Contents: I. Functions of a complex variable. Regularity, Cauchy's Theorem, residues, power series, isolated singularities, the Γ-function, asymptotic expansions. II. Linear differential equations. Elementary general theory, solution in power series, classification of singularities, behavior near a singular point, solution by Laplace transforms. III. Special differential equations. Hypergeometric equation, Legendre's equation, Bessel functions, Mathieu functions. IV. Partial differential equations, Cauchy's problem; elliptic, hyperbolic, parabolic. Riemann's method. Separation of variables.

This book is primarily intended for engineers, but its standards of rigor leave nothing to be desired. The presentation is very clear and by careful organization of the material a large amount of information has been condensed into small space without any bad effect on the readability. General theorems are followed by interesting illustrations and well selected (solved) exercises are provided; many of them develop the theory given in the text a little further and give at the same time an idea of the various possible applications, from engineering problems to quantum mechanics. The confluent hypergeometric series and Mathieu functions receive a comparatively detailed treatment, in line with their increasing use in Applied Mathematics. The few pages on partial differential equations give a surprisingly large amount of information, not just the usual collection of particular solutions.

To avoid a review without any adverse comment the reviewer should like to question the feasibility of computing $J_1(1000)$ from Hansen's integral by means of Simpson's formula.

W. H. J. Fuchs