The next six chapters are devoted to particular transformations, namely the Fourier, Mellin-Laplace, Laplace-Hankel, finite, and Riesz transformations respectively, the last named being the generalization of fractional integration arising in Riesz's method of solving hyperbolic differential equations. In the eighth chapter the various transformations are applied to solving partial differential equations in three variables. In the appendices, certain mathematical details are treated.

Throughout the work the authoress keeps her eyes firmly fixed on the physical applications of the various transformations, thus writing a book of considerable general utility.

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Sets, Logic and Axiomatic Theories, by Robert R. Stoll. Freeman, Golden Gate Series, San Francisco, 1961. 206 pages. $2.25 (U.S.)

Intuitive set theory is introduced and the algebra of sets, relations, and functions developed. Only finite unions and intersections are used. No mention of countability or the axiom of choice is made. Then the statement and predicate calculi are introduced intuitively from a semantic viewpoint. Validity is defined by truth tables for the statement calculus and by a valuation procedure (in terms of sets and relations) for the predicate calculus. A proof procedure for the predicate calculus is presented in very brief outline.

The chapter dealing with axiomatic theories is the best section of the book. The nature of informal axiomatic theories is very clearly explained. It is pointed out that many informal theories are stated in the context of set theory, such as group theory. Formal axiomatic theories are then defined and exemplified by a rigorous definition of the statement and predicate calculi. First order theories are defined and a rigorous definition of model given. The chapter ends with a short section on metamathematics in which the problems involved are defined and the answers presented without proof.

A chapter on Boolean algebras, as an axiomatic theory, is included.

Throughout the author writes with exceptional clarity and a great wealth of exercises which illustrate the applications to mathematics (particularly in the chapter on axiomatic theories) are included. These two factors make this book ideal for an undergraduate course, as was intended by the author. It may be found necessary to supplement the material on set theory or to develop more fully proof procedures for the logical calculi.

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