

by the present reviewer (Bull. Amer. Math. Soc. vol. 52 (1946) pp. 798–799). Volumes 2 and 3 of the original edition appeared in 1951 and 1954, respectively, and were duly reviewed. Now we have the first volume of the revised edition. The biggest change is that all the exercises have been omitted. The author says that a separate publication of exercises and their solutions is intended.

The general arrangement of the book has not been changed very much, but there has been extensive rewriting in places all through this first volume, with greater clarity and simplicity as the aim.

We mention some of the more significant changes.

In the discussion of the real numbers, Dedekind's axiom has been replaced by the following "Trennungsaxiom." Let  $A$  and  $B$  be two classes of real numbers such that  $a \leq b$  if  $a \in A$  and  $b \in B$ . Then there exists at least one number  $s$  such that  $a \leq s \leq b$  if  $a \in A$  and  $b \in B$ . As a criticism, I note that it should be specified that  $A$  and  $B$  are nonempty classes.

All of the diagrams in the new edition have been redrawn. The level of excellence in the diagrams is higher and more uniform than before.

Some material on infinite series and on the study of curves has been moved into volume 1 from volume 2.

The idea of an operator is introduced (a transformation of one function into another). The notion of a distributive operator is also discussed; the integral with variable upper limit is cited as an example.

Other concepts which are new in this edition are: (1) the concept of a majorant in infinite series and (2) the Lipschitz condition.

There is more about inequalities: Specifically, Jensen's inequality, and the inequalities of Hölder and Minkowski are included.

Purists of modernism in mathematics may note that the function concept is not stated in terms of a set of ordered pairs. Nor does the author write  $f$  instead of  $f(x)$  for a function.

The book is a fine example of exposition. It has the stamp of the author's personality and distinction in its style and in the historical footnotes.

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*Mathematical aspects of subsonic and transonic gas dynamics.* By Lipman Bers. Surveys in applied mathematics, no. 3, John Wiley and Sons, Inc., 1958. \$7.75.

The theory of compressible fluids leads to problems which evoke great interest among mathematicians, especially among those investigating various chapters in the theory of linear and nonlinear partial differential equations. During the last twenty years a great amount of material accumulated and there was a definite need for a survey of