Mathematiques: Tome I - Éléments de calcul différentiel et intégral, by A. Hocquenghem and P. Jafford. Masson et Cie, 1962. x + 515 pages. 36 NF.

The five-hundred-odd pages of this volume contain a vast amount of material - the whole of the elementary calculus; with a whole chapter on numerical computation starting in true modern fashion with the idea of a programme; a full treatment of vectors; and a very full treatment of what used to be called "curve-tracing", is really the beginnings of differential geometry, and here is subsumed under "Éléments de géometrie analytique". A good point is that the use of the integral to find such geometrical entities as volume is postponed until the geometrical foundations have been laid.

From the theoretical view-point, the book has one or two failings. It is hard to see the point of assuming without proof the theorem about a function continuous on a closed interval taking all intermediate values, while giving (later) a detailed proof of theorems about the limits of sums, products, and quotients. The definition of differential is incomplete and that of tangent is illogical (it is defined in terms of co-ordinates and is not shown to be a geometrical invariant). Provided that the book is not made to serve where a text-book of analysis would be appropriate, these defects detract very little from the value of the book.

H. A. Thurston, University of British Columbia

Geometric Transformations, by I. M. Yaglom. Translation by Allen Shields. Random House, 1962. 133 pages. $1.95.

This book is the eighth of the New Mathematical Library series, published by Random House and the L. W. Singer Company for the Monograph Project of the School Mathematics Study Group, whose activities are aimed at the improvement of teaching of secondary school mathematics. This volume is Part I of the Russian original, Geometric Transformations, which was published in three parts (Parts I and II in 1955; Part III in 1956).

Part I deals with the fundamental transformations of plane geometry, i.e., the Euclidean group of the plane. A short basic text consisting of an introduction and two chapters is supplemented by 47 rather difficult problems which are solved by the use of isometries. The approach is intuitive, since the book is intended for a fairly wide class of readers (including bright high school students). The notion of

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an isometry is discussed in the Introduction; Chapter I is concerned with translations, half-turns and rotations; Chapter III deals with reflections and glide reflections.

The importance of this book to secondary school mathematics lies in its description of the idea of the group-theoretic foundation of geometry.

N. D. Lane, McMaster University

Sets, Sequences and Mappings - The Basic Concepts of Analysis, by Kenneth W. Anderson and Dick Wick Hall. John Wiley and Sons, New York, 1963. x + 191 pages. $5.00.

The subtitle gives the true description of this book. It is not a text on Set Theory, but an introduction to Analysis. The authors undertake to supply the material that is "beyond the scope" of an elementary calculus text but which the advanced calculus texts "assume the reader is familiar with". This objective is achieved in the first five chapters. Chapter six is an introduction to metric spaces. The book is designed for a one semester course for sophomores.

Wherever possible the approach is by way of sequences. Continuity is defined in terms of the preservation of convergence of a sequence, but the equivalent characterizations in terms of open sets and the "ε - δ" notation are proved.

There are few logical gaps. All necessary results are either proved or stated with proofs left to the exercises. A more complete discussion of the real numbers and of order relations would avoid the risk of some confusion. The authors state that they avoid the use of "sketches", but recommend that the student and instructor supply them. This principle seems to be too rigidly followed. There are places where a sketch could clarify a point.

The book shows the beneficial effects of being used in class during its development. Several points that often confuse students receive special attention. One example is the justification for using $\varepsilon/2$ instead of ε in applying the definition of convergence. The discussion of the absolute value is well done.

There is an adequate index and also a list of axioms and key theorems. About one-half of the problems consist of supplying details omitted in the text.

G. C. Bush, Queen's University

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