to include an account of metric spaces and to make brief mention of general topological spaces. Some material on conformal mapping has been added and the inclusion of the Schwarz-Christoffel transformation will add to the value of the book to students of applied mathematics. A chapter of twenty pages has been included on elliptic functions and the modular function introduced there is used later in the book along with the monodromy theorem to prove Picard's theorem. It was a defect of the first edition that hardly enough examples were provided by which the student could test his skill and discover the gaps in his understanding; this has been remedied in the present edition.

The admirable qualities of the first edition have, of course, been preserved in the revision and the book is one which every serious student of complex variable theory should possess.   D. MARTIN

KLETENIK, D. V., *A Collection of Problems in Analytical Geometry* (Pergamon Press, 1966): Part I, *Analytical Geometry in the Plane*, ix + 186 pp., 18s. 6d.; Part II, *Three-dimensional Analytical Geometry*, ix + 137 pp., 15s.

These two little books contain 1261 problems on analytical geometry, with answers. Part II includes sections on vector algebra and determinants. The problems are mostly very elementary in nature, demanding straightforward calculations rather than theoretical proofs. The collection might prove useful for pupils needing much practice in routine coordinate geometry, but it can hardly be described as inspiring.

D. MONK

MAGNUS, WILHELM; KARRASS, ABRAHAM; AND SOLITAR, DONALD, *Combinatorial Group Theory* (Interscience Publishers, New York, 1966).

This book is concerned with the presentation of groups in terms of generators and defining relations, and, in particular, with free groups and free products. The adjective " combinatorial " arises from the frequent occurrence of combinatorial methods in this theory. A very clear and thorough treatment is given, and it seems certain that the book will become indispensable to mathematicians working in this area. There are numerous problems of considerable interest for the student to attempt and very full hints are given for their solution. Of particular interest to the reviewer were the frequent illustrations of the general theory chosen from the theory of the modular group and other groups of matrices. Burnside's problem and the fundamental problems of Max Dehn (of which the word problem is only one) are discussed in the later part of the book where a brief introduction is given to recent work on these very deep problems.

R. A. RANKIN

BRAUN, H., AND KOECHER, M., *Jordan-Algebren* (Springer-Verlag, Berlin-Heidelberg-New York, 1966), xiv + 357 pp., DM 48.

Jordan algebras arise in the study of subspaces of an associative algebra which are closed under the squaring operation, or more particularly, subspaces of symmetric elements in an algebra with an involution. This was the motivation for Jordan's initial work in the 1930's and it also lies behind the recent work of Vinberg in classifying homogeneous convex domains. Between these two applications a great deal of pure theory was developed and it is this theory which the authors describe here, in the first full-length book on the subject.

The authors lay—rightly—much emphasis on the quadratic transformation $P(x): u \to 2(ux)x - u \cdot x^2$ (corresponding to $u \to x \cdot u \cdot x$ in an associative algebra). It is defined in terms of inverses by the equation $P(x^{-1})u = u \dfrac{\partial x^{-1}}{\partial x}$. This makes it applicable to any algebra in which there are generic units (e.g. finite-dimensional