are in order. The book is not primarily intended to treat the applications of differentiation theory to real and complex analysis. Rather, for the most part, the author tries to achieve great depth in treating the "pure" differentiation theory itself. He therefore provides a background for the material discussed here rather than this material proper. De Guzmán's book contains the basic Lebesgue theorem on differentiation of the integral and the Hardy-Littlewood maximal theorem along with a great many variants of these theorems, proven by the use of covering lemmas. The variants of the Vitali lemma which the author treats are also quite numerous. It is extremely commendable that the Calderón-Zygmund decomposition is proven, and the disk multiplier problem is mentioned, with a few words about C. Fefferman's solution to the problem. In addition, De Guzmán includes a careful treatment of differentiation theory with respect to two other extremely crucial differentiation bases besides the class of balls (or what is essentially the same thing, cubes). These are the bases of all rectangles in R^n with sides parallel to the coordinate axes, and the larger class of all rectangles in R^n with arbitrary orientation. The relationship between covering lemmas, maximal theorems, and differentiation theorems is also discussed. These important topics, as well as many others make the book's content worthwhile for the experts of this subject or for students who would like to learn these areas, and then branch out by studying the important applications.

De Guzmán's book is carefully written, and the style makes for easy and enjoyable reading. His work is a significant contribution to the field which should be welcomed by all concerned with this beautiful area of mathematics.

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Invariants for real-generated uniform topological and algebraic categories, by Kevin A. Broughan, Lecture Notes in Mathematics, No. 491, Springer-Verlag, Berlin, Heidelberg, New York, 1975, x + 197 pp., $8.20.

The literature on relations between the dimension of a metrizable space X and the existence of metrics on X having convenient special properties is rather extensive (see Nagata's book [5] for the only good exposition) and contains two really successful theorems. First, Hausdorff formalized the idea of estimating the measure of a set A in t-dimensional space by covering it with finitely many ε_i-spheres and taking their measures to be ε_i^t. It turns out (L. Pontrjagin and L. Schnirelmann, 1932; E. Szpilrajn, 1937; book [5, pp. 112–116]) that the dimension of separable metrizable A is the infimum of the real numbers t such that for some metric on A, the t-dimensional measure is 0. The second theorem is P. Ostrand's [6] (improving results of J. de Groot, 1957, and J. I. Nagata, 1958; book [5, pp. 137–154]): metrizable X has covering dimension $\leqslant n$ if and only if it has a metric in which, for all ε, given