April Meeting of the Metropolitan New York Section

The American Mathematical Monthly, Vol. 57, No. 7 (Aug. - Sep., 1950), 514-516.

6. *On quasi-analytic functions of analytic functions*, by I. I. Hirschman, Jr., Washington University.

In the theory of quasi-analytic functions it is sometimes necessary to obtain bounds on the derivatives of $f[g(x)]$ from bounds on the derivatives of f and g separately. Several theorems of this type are presented. It is shown in particular that if g is analytic, and if we possess information concerning the behavior of $g(x)$ in the complex plane, then very precise estimates may be found.

7. *A method of uniformizing grades*, by Marlow Sholander, Washington University, introduced by the Secretary.

The speaker presented a description of the method which has been used with some success at Washington University in multiple section mathematics courses, to reduce the probability that two students with different instructors receive grades incommensurate with their ability and effort.

MARGARET F. WILLERDING, *Secretary*

APRIL MEETING OF THE METROPOLITAN NEW YORK SECTION

The April meeting of the Metropolitan New York Section of the Mathematical Association of America was held at the City College of the College of the City of New York, New York, on Saturday, April 1, 1950. The Chairman of the Section, Professor B. P. Gill, introduced President Wright, and presided at the business meeting which preceded the afternoon session; the High School Vice-Chairman, Mr. Alan Wayne, presided at the morning session; the Collegiate Vice-Chairman, Professor L. F. Ollmann, presided at the afternoon session.

One hundred and ten persons attended the meeting, including the following sixty-seven members of the Association: M. W. Al-Dhahir, Brother Bernard Alfred, R. C. Archibald, F. C. Beckman, Samuel Borofsky, C. B. Boyer, Paul Brock, A. B. Brown, J. H. Bushey, J. J. Clark, T. F. Cope, W. H. H. Cowles, P. M. Curran, I. A. Dodes, J. N. Eastham, W. H. Fagerstrom, H. F. Fehr, B. P. Gill, G. C. Helme, A. J. Hoffman, E. Marie Hove, T. R. Humphreys, Solomon Hurwitz, L. C. Hutchinson, Alto C. Juelich, C. J. Kaufman, L. S. Kennison, G. A. Keyes, H. S. Kieval, R. J. Kohlmeyer, H. C. Kranzer, C. H. Lehmann, D. R. Lintvedt, E. R. Lorch, D. M. MacEwen, V. S. Mallory, D. May Hickey Maria, F. H. Miller, A. J. Mortola, D. S. Nathan, M. A. Nordgaard, Eugene Odin, C. S. Ogilvy, L. F. Ollmann, O. L. Phillips, W. L. Pickard, E. L. Post, Walter Prenowitz, J. J. Quinn, Moses Richardson, Selby Robinson, H. D. Ruderman, John Salerno, Abraham Schwartz, Aaron Shapiro, James Singer, M. G. Smith, C. G. Solky, E. P. Starke, Mildred M. Sullivan, Annita Tuller, H. E. Wahlert, Alan Wayne, W. W. Winnis, J. M. Wolfe, H. N. Wright, H. J. Zimmerberg.

The following officers were elected for the coming year: Chairman, Brother Bernard Alfred, Manhattan College; Collegiate Vice-Chairman, James Singer, Brooklyn College; High School Vice-Chairman, I. A. Dodes, Stuyvesant High School; Secretary, H. S. Kieval, Brooklyn College; Treasurer, Aaron Shapiro, Midwood High School. Professor W. H. Fagerstrom, Chairman of the Committee on Prizes and Awards, reported on the progress of the Committee and on the forthcoming High School Contest sponsored by the Section. Complete de-

tails of the contest will appear in this MONTHLY.

Dr. H. N. Wright, President of The City College, welcomed the people at the meeting, and then the following papers were presented:

1. *What is mathematical functionality?* by Dr. Barnett Rich, Richmond Hill High School (introduced by Mr. Alan Wayne).

In this paper, the author condensed material contained in his dissertation, which pertained especially to the problems of what constitutes the domain of the subject matter of functionality, and how the basic concepts of functionality or relational variability may be applied to the teaching of mathematics, and utilized further in the teaching of science. The main points treated in the paper concern: (1) The use of a new symbol, namely $\mathfrak{x}x)$, for the ratio of any two ordered values of a variable; (2) A comparison of the similarity of the uses of the new symbol $\mathfrak{x}x)$ to those of Δx; (3) The approach to functionality through the use of three-variable relationships of the simplest operational character, such as $z=xy$, $z=x+y$, and $z+x^y$; (4) The emphasizing of sense change and variation in the teaching of both mathematics and science; (5) Continuity in the instruction of functionality from the elementary school to the college.

2. *Inequalities and convex bodies*, by Professor E. R. Lorch, Columbia University.

Basic to the development of analysis are certain inequalities such as those of Cauchy-Schwartz, Holder, and the triangle inequality. The relation between inequalities and the theory of convex bodies has been known since the time of Minkowski. However, the classic theory merely has existential force, and does not give methods for actual computation. This paper presents precise and analytically transparent methods for the derivation of all inequalities of this type. The program is based on a new definition of convexity in which the notions of differentiability, homogeneity, definite quadratic form, and one-to-one transformation play a dominant role. It is shown that bodies which are convex in the classic sense may be approximated arbitrarily closely by those of our type. This circumstance makes it possible to reconsider every problem on convexity along lines in which these new techniques apply.

3. *What mathematics should a high school teacher know?* by Professor H. F. Fehr, Teachers College, Columbia University.

Teacher examinations in large cities demand a knowledge of advanced mathematics of little use in high school teaching. State certifications require from zero to twenty semester hours of mathematics; college major requirements vary from eighteen to forty-six semester hours. Commission reports recommend study beyond the calculus and in the physical sciences. The changing purpose of high school instruction demands other mathematical knowledge than traditional preparatory mathematics. Beyond high school subjects the teacher must know analytic geometry, advanced algebra, the calculus, foundations of modern mathematics, and applications and the history of what he teaches. There is special need for professionalization of high school mathematics, that is, a study from an advanced view-point, and from many avenues of approach, of the high school content. The high school teacher must be a scholar within his field, not necessarily beyond it.

4. *What makes a good problem?* by Professor E. P. Starke, Rutgers University.

Several possible characteristics of a "good" problem are proposed, discussed briefly, and illustrated by selections from the problem departments of this MONTHLY and other journals. A good problem meets one or more of the following requirements: it may extend old results or open up a new field of interest; it may be nicely adapted to develop facility and ingenuity for its solution; it may force out into the open certain misunderstandings or inadequacies; it may have an

unexpected and surprising conclusion; it may require the invention of new methods of attack; or it may possess a wide range of appeal, perhaps through being dressed up in picturesque language. A real need exists for more good problems both for class practice and for the pages of the problem departments.

5. *Analog computers*, by Mr. A. Goetz, Arma Corporation (introduced by Mr. Eugene Odin).

The speaker stressed the role of the machine computer with regard to its utility in the solution of present day problems. He classified the computers into several types, and chose the automatic electromagnetic analog computer for closer examination. The components of such a device were enumerated. A review of the operations of arithmetic, calculus, and function generation was made, and illustrations of various instrumentations of the operations of addition, subtraction, multiplication, division, differentiation, integration, and function generation were given.

The speaker then developed the block diagram of a computer to solve the simple geometric problem of a plane triangle where two sides and the included angle are known and the length of the other side is required.

The hope was expressed that the dissemination of information regarding the capabilities of the analog computer would result in its application in fields as yet unexplored.

JAMES SINGER, *Secretary*

CALENDAR OF FUTURE MEETINGS

Thirty-fourth Annual Meeting, University of Florida, Gainesville, December 30, 1950.

Thirty-second Summer Meeting, University of Minnesota, Minneapolis, September 3–4, 1951.

The following is a list of the Sections of the Association with dates of future meetings so far as they have been reported to the Secretary.

ALLEGHENY MOUNTAIN, Duquesne University, Pittsburgh, Pennsylvania, May, 1951.

ILLINOIS, University of Illinois, Urbana, May 11–12, 1951.

INDIANA, May 5, 1951.

IOWA, Wartburg College, Waverly, April 20–21, 1951.

KANSAS

KENTUCKY, Eastern Kentucky State College, Richmond, April 28, 1951.

LOUISIANA-MISSISSIPPI

MARYLAND-DISTRICT OF COLUMBIA-VIRGINIA, December 9, 1950.

METROPOLITAN NEW YORK, Spring, 1951.

MICHIGAN, East Lansing, March 24, 1951.

MINNESOTA, Duluth Branch of University of Minnesota, October 7, 1950.

MISSOURI, Central College, Fayette, Spring, 1951.

NEBRASKA, University of Nebraska, Lincoln, May 5, 1951.

NORTHERN CALIFORNIA, University of San Francisco, January 27, 1951.

OHIO, April 21, 1951.

OKLAHOMA, Oklahoma City, November 13, 1950.

PACIFIC NORTHWEST, State College of Washington, Pullman, June 15, 1951.

PHILADELPHIA, Lehigh University, Bethlehem, Pennsylvania, November 25, 1950.

ROCKY MOUNTAIN, Colorado State College of Education, Greeley, April, 1951.

SOUTHEASTERN, Vanderbilt University and Peabody College, Nashville, Tennessee, March 16–17, 1951.

SOUTHERN CALIFORNIA, Whittier College, Whittier, March 10, 1951.

SOUTHWESTERN, University of New Mexico, Albuquerque, Spring, 1951.

TEXAS, Southern Methodist University, Dallas, Spring, 1951.

UPPER NEW YORK STATE, Hamilton College, Clinton, Spring, 1951.

WISCONSIN, Carroll College, Waukesha, May, 1951.