Remark: If we only need n_1+md_1 to be non-vanishing, there is no restriction on solving the problem without the self conjugation condition: with this condition, the problem can be solved if and only if the values of d_1 at all real zeros of n_1 in $\overline{D}$ have the same sign.

(submitted by *J.J. Murray*)

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WORD CONSERVATION

To counter the recent British changeover from the English billion, which is worth one million million, to the American billion, of one thousand million, we advocate the introduction of the Irish thousand, worth one hundred hundred, as a substitute for the English and American thousand, which is ten hundred. This would give an Irish billion of ten to the power of sixteen, which the Americans would have to call ten quadrillion. By the time we in Ireland have used up one new word therefore the Americans will have used up three, and be well on the way to their fourth.

AUTONOMOUS NOTATION

$e^{xponential}$; $log_a rithm$; $\int e^x = f(u_n)$; $CAT_{A_{STROPHE}}$

ALGEBRA CONFERENCE

MARY IMMACULATE COLLEGE OF EDUCATION, LIMERICK

12-13 NOVEMBER, 1982

The principal invited speaker was Professor John Thompson (Cambridge) who is well known to algebraists for his many fundamental contributions to the theory of finite groups and in particular to the classification of finite simple groups. His first lecture took the form of an anecdotal tour through the background to the Odd Order Paper highlighting the decisive influence of Frobenius, Burnside, Brauer and Suzuki. Without the individual achievements of these great mathematicians the project could not have been undertaken.

In his second, more technical, lecture Professor Thompson sought to demonstrate the fundamental and intimate connexions that exist between the theory of modular functions and finite group theory. The precise nature of the relationship is still not clearly understood and new facts are constantly emerging. In particular Professor Thompson announced his recently proved result that the group known as Monster fits remarkably well into this scheme as a Galois group over the rationals. He discussed the possibility that there may lie the foundation of an overall theory which would put the twenty six sporadic simple groups into a unified context, thereby satisfying those who, like himself, dislike regarding these exceptions as mere 'bumps in the universe'.

There were three other invited lectures given, appropriately, by speakers from Cork, Dublin and Galway.

Des McHale (University College Cork) described the lives of Boole and Hamilton seeking to explain why there was so little contact between them, despite the fact that they lived in Ireland at the same time for a period of fourteen years. In a detailed analysis drawn from his own work on Boole and a

recently published biography of Hamilton by Hankins, he showed that this was due essentially to a conflict of personalities and to differences in social class.

Tom Laffey (University College Dublin) gave a survey of results on similarity and congruence of matrices. In this most informative talk Professor Laffey referred particularly to the similarity (well known) and congruence (recently proved by Gow among others) of a matrix with its transpose. He mentioned various refinements of these and concluded with a discussion of orthogonal similarity.

The third invited lecturer was Martin Newell (University College Galway) who has been investigating metabelian groups of exponent p^n in general and of exponent 8 in particular. He showed that for $m \geq 4$ the free group of exponent 8 on m generators has class at most $3m + 1$. This combined with a result of Liebeck gives the class as exactly $3m + 1$. In doing so he gave us some insight into the trials and tribulations of the commutator calculus!

Eight shorter talks were given at the conference on subjects variously algebraic. The speakers were: M.J. Curran (Otago, N.Z. and Oxford), D.A. Towers (Lancaster), A.R. Prince (Edinburgh), B. Goldsmith (Dublin Institute of Technology), J. Hannah (U.C.G.), F. Holland (U.C.C.), R. Gow (U.C.D.) and D.W. Lewis (U.C.D.)

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SEMINAR ON MATHEMATICS EDUCATION

This seminar, which was held in St. Patrick's College, Drumcondra, on November 13th, 1982, was organised by the Irish Mathematics Teachers Association and was aimed at teachers of mathematics at all levels. It focused on important aspects of mathematics teaching including pupil characteristics, motivation, talented pupils, and quality of textbooks. Approximately 150 teachers from primary, post-primary and third-level schools and colleges attended the seminar.

For the first lecture, Dr. Vincent Greaney and Miss Mary Hegarty of the Educational Research Centre, St. Patrick's College, presented their findings of a research study of factors relating to achievement in mathematics in a sample of fifth grade pupils of above average ability. Their analysis suggested that pupil variables, such as verbal ability and reading attainment, together with background variables, such as pressure for achievement and mother's educational level, account for (predict) more than two-thirds of the variation in mathematics attainment at this grade-level. It also suggested that home background variables are more related to success in computation and problem-solving, whereas personal variables are more related to success with mathematical concepts. The findings highlight the apparent importance of non-school factors in determining the performance of fifth grade pupils in mathematics.

The second session consisted of a talk by Mr. Peter McGrattan of St. Mary's College of Education, Belfast, on techniques for motivating students to learn mathematics. He demonstrated to the audience how he makes abstract topics in mathematics more meaningful and interesting to his students by guiding them to comprehend the significance of the topics in such everyday recreational activities as golf, snooker, darts, etc.

Mr. McGrattan was follwed by Mr. Francis Douglas of tne U.C.C. Education Department who talked about teaching mathematics creatively to ordinary and mathematically talented students. He emphasised the importance of encouraging divergent thinking and generalisation on the part of students in their approach to problem-solving and illustrated his points with examples from the teaching of conic sections and the volume of regular shapes. He also outlined a viewpoint on the role of the teacher in catering for the mathematically talented students.

For the final session Miss Catherine Mulryan of the Education Department in St. Patrick's College, Dublin, presented the findings of an analysis of four mathematics textbook series currently in use in Irish primary schools. The study examined the textbooks under the following headings: content coverage and continuity, presentation and consolidation, readability and technical characteristics such as use of colour, type size etc. The results indicated substantial differences among the four series of textbooks on all of these groups of characteristics.

The large attendance and the number of positive comments in the follow-up questionnaire suggested that there is much interest among mathematics teachers in the area of mathematics education.

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CONFERENCE ANNOUNCEMENTS

Finite Element Programming with Special Emphasis on Semiconductor Device and Process Modelling, Galway, Ireland, June 13-14, 1983

In association with the NASECODE III Conference, an International Short Course on Finite Element Programming with special emphasis on Semiconductor Device and Process Modelling will be held in the Great Southern Hotel, Galway, Ireland on June 13th and 14th, 1983. The conference itself will take place on the three subsequent days.

The 16 invited lecturers are:

T. Arnborg	Royal Institute of Technology, Stockholm
K. Board	University College, Swansea
A.R. Boothroyd	Carleton University, Ottawa
W.T. Cochran	Bell Laboratories, Allentown
W.T. Coffey	Trinity College, Dublin
R.W. Dutton	Stanford University, Stanford
W. Fichtner	Bell Laboratories, Murray Hill
A.F. Kravchenko	Institute of Semiconductor Physics, Novosibirsk
P. Mole	General Electric, Wembley
E. Palm	Catholic Unversity of Louvain, Louvain la Neuve
D.N. Pattanayak	Rockwell International Corporation, Anaheim
D.J. Rose	Bell Laboratories, Murray Hill
M. Rudan	Institute of Electronics, Bologna
A.V. Rzanov	Academy of Science, Novosibirsk
C.W. Trowbridge	Rutherford Laboratories, Didcot
N.N. Yanenko	Institute for Theoretical and Applied Mechanics, Novosibirsk

Each lecturer will present a tutorial or review lecture on a topic in which he has a special interest or knowledge. The course will be suitable therefore both to those people wishing to enter this area for the first time, and to those who feel the need for a review of recent results in areas other than their own.

An exhibition of relevant books, journals and mathematical software will be held in conjunction with the short course.