CONTENTS

Preface	,	•	•	•	•	ix
Purposeful and unpurposeful computing By Harvey Cohn		•	•	•	•	1
Eliminating the irrelevant from mechanical proofs By Martin Davis	-	•			•	15
The mechanization of mathematical arguments By Hao Wang	•				•	31
Towards more versatile mechanical translators. By E. T. IRONS	•				•	41
Information theory and decoding computations By Peter Elias						51
Adaptive neural networks as brain models . By H. D. Block		•	-		•	59
Computer investigation of orthogonal Latin squares By E. T. PARKER	of ore	der te	n		٠	73
Determination of division algebra with 32 elements By R. J. WALKER	•				•	83
How programming difficulties can lead to theoretical By E. C. Dade and H. Zassenhaus	adva	nces	•			87
Methods of successive restrictions in computational crete variables	probl	lems i	involv	ing di	is-	95
An experimental study of the simplex method By Harold W. Kuhn and Richard E. Quan						107
Large and nonconvex problems in linear programmin	_				•	125

Some high speed logic
Stability questions for some numerical methods for ordinary differential equations
Some applications of the quotient-difference algorithm
Plane-rotations in floating-point arithmetic
New aspects in numerical quadrature
On Jacobi rotation patterns
Automatic numerical integration of ordinary differential equations 241 By Arnold Nordsieck
Survey of stability of different schemes for solving initial value problems for hyperbolic equations
Unexpected dividends in the theory of prime numbers
The particle-in-cell method for numerical solution of problems in fluid dynamics. By Francis H. Harlow
Numerical experiments in atmospheric hydrodynamics
The oscillations of the earth and of the atmosphere
Few particle experiments in statistical mechanics
An approach to the Ising problem using a large scale fast digital computer By Chen-Ping Yang 351

CONTENTO	••
CONTENTS	VII

Applied mathematics as used in theoretical chemistry By Joseph O. Hirschfelder							stry	•	•	. 367
The mechanization By R. W. H			ce .						•	. 377
AUTHOR INDEX	•	ě	٠		•	٠.				. 385
SUBJECT INDEX										. 389