# Pacific <br> <br> Journal of <br> <br> Journal of Mathematics 


Errett Bishop, A generalization of the Stone-Weierstrass theorem ..... 777
H. D. Brunk, Best fit to a random variable by a random variable measura- ble with respect to a $\sigma$-lattice ..... 785
D. S. Carter, Existence of a class of steady plane gravity flows ..... 803
S. Cater, On the theory of spatial invariants ..... 821
S. Chowla, M. Dunton and D. J. Lewis, Linear recurrences of order two ..... 833
Paul Civin and Bertram Yood, The second conjugate space of a Banach algebra as an algebra. ..... 847
W. J. Coles, Wirtinger-type integral inequalities ..... 871
S. R. Foguel, Strongly continuous Markov processes ..... 879
D. J. Foulis, Conditions for the modularity of an orthomodular lattice. ..... 889
Jerzy Gorski, The Sochocki-Plemelj formula for the functions of two com- plex variables. ..... 897
John W. Gray, Extensions of sheaves of associative algebras by nontrivial kernels ..... 909
Maurice Hanan, Oscillation criteria for third-order linear differential equations ..... 919
H. Hanani and M. Reichbach, Some characterizations of a class of unavoida- ble compact sets in the game of Banach and Mazur ..... 945
John Harvey, Complete holomorphs . ..... 961
Joseph Hersch, Physical interpretation and strengthening of M. H. Protter's method for vibrating nonhomogeneous membranes; its analogue for Schrödinger's equation ..... 971
J. G. Horne, Jr., Real commutative semigroups on the plane ..... 981
Nai-chao Hsu, The group of automorphisms of the holomorph of a group. ..... 999
F. Burton Jones, The cyclic connectivity of plane continua ..... 1013
J. A. Kalman, Continuity and convexity of projections and barycentric co- ordinates in convex polyhedra ..... 1017
Samuel Karlin, Frank Proschan and Richard E. Barlow, Moment inequali- ties of Pólya frequency functions ..... 1023
Tilla Klotz, Imbedding compact Riemann surfaces in 3-space ..... 1035
A. Lévy and R. Vaught, Principles of partial reflection in the set theories of Zermelo and Ackermann ..... 1045
D. J. Lewis, Two classes of diophantine equations ..... 1063
Daniel C. Lewis, J., Reversible transformations. ..... 1077
Gerald Losey and Hans Schneider, Group membership in rings and semi- groups ..... 1089
N. N. Mikhail and M. Nassif, On the difference and sum of basio sets of polynomials ..... 1099
Alex Rosenberg and Daniel Zelinsky, Automorphisms of separable algebras. ..... 1109
Robert Steinberg, Automorphisms of classical Lie algebras ..... 1119
Ju-kwei Wang, Multipliers of commutative Banach algebras. .....
Neal Zierler, Axioms for non-relativistic quantum mechanics. ..... 1151

# PACIFIC JOURNAL OF MATHEMATICS 

## EDITORS

Ralph S. Phillips<br>Stanford University<br>Stanford, California

A. L. Whiteman<br>University of Southern California<br>Los Angeles 7. California

L. J. Paige

University of California
Los Angeles 24, California

## ASSOCIATE EDITORS

E. F. BECKENBACH
D. DERRY
T. M. CHERRY
M. OHTSUKA
H. L. ROYDEN
E. SPANIER

E. G. STRAUS<br>F. WOLF

## SUPPORTING INSTITUTIONS

UNIVERSITY OF BRITISH COLUMBIA<br>CALIFORNIA INSTITUTE OF TECHNOLOGY UNIVERSITY OF CALIFORNIA MONTANA STATE UNIVERSITY UNIVERSITY OF NEVADA NEW MEXICO STATE UNIVERSITY OREGON STATE COLLEGE UNIVERSITY OF OREGON OSAKA UNIVERSITY UNIVERSITY OF SOUTHERN CALIFORNIA

```
STANFORD UNIVERSITY
UNIVERSITY OF TOKYO
UNIVERSITY OF UTAH
WASHINGTON STATE COLLEGE
UNIVERSITY OF WASHINGTON
AMERICAN MATHEMATICAL SOCIETY
CALIFORNIA RESEARCH CORPORATION
HUGHES AIRCRAFT COMPANY
SPACE TECHNOLOGY LABORATORIES
NAVAL ORDNANCE TEST STATION
```


#### Abstract

Mathematical papers intended for publication in the Pacific Journal of Mathematics should be typewritten (double spaced), and the author should keep a complete copy. Manuscripts may be sent to any one of the four editors. All other communications to the editors should be addressed to the managing editor, L. J. Paige at the University of California, Los Angeles 24, California.

50 reprints per author of each article are furnished free of charge; additional copies may be obtained at cost in multiples of 50 .


The Pacific Journal of Mathematics is published quarterly, in March, June, September, and December. The price per volume ( 4 numbers) is $\$ 12.00$; single issues, $\$ 3.50$. Back numbers are available. Special price to individual faculty members of supporting institutions and to individual members of the American Mathematical Society: $\$ 4.00$ per volume; single issues, \$1.25.

Subscriptions, orders for back numbers, and changes of address should be sent to Pacific Journal of Mathematics, 103 Highland Boulevard, Berkeley 8, California.

Printed at Kokusai Bunken Insatsusha (International Academic Printing Co., Ltd.), No. 6, 2-chome, Fujimi-cho, Chiyoda-ku, Tokyo, Japan.

PUBLISHED BY PACIFIC JOURNAL OF MATHEMATICS, A NON-PROFIT CORPORATION
The Supporting Institutions listed above contribute to the cost of publication of this Journal, but they are not owners or publishers and have no responsibility for its content or policies.

