The Fibonacci Quarterly

THE OFFICIAL JOURNAL OF THE FIBONACCI ASSOCIATION

TABLE OF CONTENTS

On the Number of Independent Sets of Nodes in a Tree ..... *R. Dutton, N. Chandrasekharan, and R. Brigham* 98

Carlitz Generalizations of Lucas and Lehmer Sequences ..... *A.G. Shannon and R.S. Melham* 105

Determining the Dimension of Fractals Generated by Pascal's Triangle ..... *Ashley Melia Reiter* 112

Triple Factorization of Some Riordan Matrices ..... *Paul Peart and Leon Woodson* 121

Three-Square Theorem as an Application of Andrews' Identity ..... *S. Bhargava, Chandrashekar Adiga, and D.D. Somashekara* 129

Fourth International Conference Proceedings 133

Some Polynomial Identities for the Fibonacci and Lucas Numbers ..... *Derek Jennings* 134

A Variation on the Two-Digit Kaprekar Routine ..... *Anne Ludington Young* 138

Announcement on Sixth International Conference 145

On Consecutive Niven Numbers ..... *Curtis Cooper and Robert E. Kennedy* 146

Author and Title Index for Sale 151

Mixed Fermat Convolutions ..... *Gospava B. Dordevic* 152

Hyperspaces and Fibonacci Numbers ..... *Herman Haase* 158

Editor's Leave of Absence 161

A Disjoint System of Linear Recurring Sequences Generated by $u_{n+2} = u_{n+1} + u_n$ which Contains Every Natural Number ..... *Joachim Zöllner* 162

Generalized Pascal Triangles and Pyramids Their Fractals Graphs and Applications ..... *Boris A. Bondarenko* 165

Associated Sequences of General Order ..... *A.F. Horadam* 166

Nonexistence of Even Fibonacci Pseudoprimes of the 1st Kind ..... *Adina Di Porto* 173

The Moment Generating Function of the Geometric Distribution of Order k ..... *Michael J.J. Barry and Anthonly J. Lo Bello* 178

Elementary Problems and Solutions ..... *Edited by Stanley Rabinowitz* 181

Advanced Problems and Solutions ..... *Edited by Raymond E. Whitney* 187

VOLUME 31 MAY 1993 NUMBER 2

PURPOSE

The primary function of **THE FIBONACCI QUARTERLY** is to serve as a focal point for widespread interest in the Fibonacci and related numbers, especially with respect to new results, research proposals, challenging problems, and innovative proofs of old ideas.

EDITORIAL POLICY

THE FIBONACCI QUARTERLY seeks articles that are intelligible yet stimulating to its readers, most of whom are university teachers and students. These articles should be lively and well motivated, with new ideas that develop enthusiasm for number sequences or the exploration of number facts. Illustrations and tables should be wisely used to clarify the ideas of the manuscript. Unanswered questions are encouraged, and a complete list of references is absolutely necessary.

SUBMITTING AN ARTICLE

Articles should be submitted in the format of the current issues of **THE FIBONACCI QUARTERLY.** They should be typewritten or reproduced typewritten copies, that are clearly readable, double spaced with wide margins and on only one side of the paper. The full name and address of the author must appear at the beginning of the paper directly under the title. Illustrations should be carefully drawn in India ink on separate sheets of bond paper or vellum, approximately twice the size they are to appear in print. Since the Fibonacci Association has adopted $F_1 = F_2 = 1$, $F_{n+1} = F_n + F_{n-1}$, $n \geq 2$ and $L_1 = 1$, $L_2 = 3$, $L_{n+1} = L_n + L_{n-1}$, $n \geq 2$ as the standard definitions for The Fibonacci and Lucas sequences, these definitions *should not* be a part of future papers. However, the notations *must* be used. One to three *complete* A.M.S. classification numbers *must* be given directly after references or on the bottom of the last page. Papers without classification numbers will be returned.

Two copies of the manuscript should be submitted to: **GERALD E. BERGUM, EDITOR, THE FIBONACCI QUARTERLY, DEPARTMENT OF COMPUTER SCIENCE, SOUTH DAKOTA STATE UNIVERSITY, BOX 2201, BROOKINGS, SD 57007-1596.**

Authors are encouraged to keep a copy of their manuscripts for their own files as protection against loss. The editor will give immediate acknowledgment of all manuscripts received.

SUBSCRIPTIONS, ADDRESS CHANGE, AND REPRINT INFORMATION

Address all subscription correspondence, including notification of address change, to: **RICHARD VINE, SUBSCRIPTION MANAGER, THE FIBONACCI ASSOCIATION, SANTA CLARA UNIVERSITY, SANTA CLARA, CA 95053.**

Requests for reprint permission should be directed to the editor. However, general permission is granted to members of The Fibonacci Association for noncommercial reproduction of a limited quantity of individual articles (in whole or in part) provided complete reference is made to the source.

Annual domestic Fibonacci Association membership dues, which include a subscription to **THE FIBONACCI QUARTERLY,** are $35 for Regular Membership, $40 for Library, $45 for Sustaining Membership, and $70 for Institutional Membership; foreign rates, which are based on international mailing rates, are somewhat higher than domestic rates; please write for details. **THE FIBONACCI QUARTERLY** is published each February, May, August and November.

All back issues of **THE FIBONACCI QUARTERLY** are available in microfilm or hard copy format from **UNIVERSITY MICROFILMS INTERNATIONAL, 300 NORTH ZEEB ROAD, DEPT. P.R., ANN ARBOR, MI 48106.** Reprints can also be purchased from **UMI CLEARING HOUSE** at the same address.

©1993 by
The Fibonacci Association
All rights reserved, including rights to this journal issue as a whole and, except where otherwise noted, rights to each individual contribution.

The Fibonacci Quarterly

Founded in 1963 by Verner E. Hoggatt, Jr. (1921-1980)
and Br. Alfred Brousseau (1907-1988)

THE OFFICIAL JOURNAL OF THE FIBONACCI ASSOCIATION
DEVOTED TO THE STUDY
OF INTEGERS WITH SPECIAL PROPERTIES

EDITOR

GERALD E. BERGUM, South Dakota State University, Brookings, SD 57007-1596

ASSISTANT EDITORS

MAXEY BROOKE, Sweeny, TX 77480
JOHN BURKE, Gonzaga University, Spokane, WA 99258
LEONARD CARLITZ, Duke University, Durham, NC 27706
HENRY W. GOULD, West Virginia University, Morgantown, WV 26506
A.P. HILLMAN, University of New Mexico, Albuquerque, NM 87131
A.F. HORADAM, University of New England, Armidale, N.S.W. 2351, Australia
CLARK KIMBERLING, University of Evansville, Evansville, IN 47722
DAVID A. KLARNER, University of Nebraska, Lincoln, NE 68588
RICHARD MOLLIN, University of Calgary, Calgary T2N 1N4, Alberta, Canada
GARY L. MULLEN, The Pennsylvania State University, University Park, PA 16802
SAMIH OBAID, San Jose State University, San Jose, CA 95192
NEVILLE ROBBINS, San Francisco State University, San Francisco, CA 94132
DONALD W. ROBINSON, Brigham Young University, Provo, UT 84602
LAWRENCE SOMER, Catholic University of America, Washington, D.C. 20064
M.N.S. SWAMY, Concordia University, Montreal H3C 1M8, Quebec, Canada
D.E. THORO, San Jose State University, San Jose, CA 95192
ROBERT F. TICHY, Technical University, Graz, Austria
WILLIAM WEBB, Washington State University, Pullman, WA 99164-2930

BOARD OF DIRECTORS
THE FIBONACCI ASSOCIATION

CALVIN LONG (President)
Washington State University, Pullman, WA 99164-2930

G.L. ALEXANDERSON
Santa Clara University, Santa Clara, CA 95053

ANDREW GRANVILLE
University of Georgia, Athens, GA 30601-3024

PETER HAGIS, JR.
Temple University, Philadelphia, PA 19122

FRED T. HOWARD
Wake Forest University, Winston-Salem, NC 27109

MARJORIE JOHNSON (Secretary-Treasurer)
665 Fairlane Avenue, Santa Clara, CA 95051

LESTER LANGE
San Jose State University, San Jose, CA 95192

THERESA VAUGHAN
University of North Carolina, Greensboro, NC 27412