

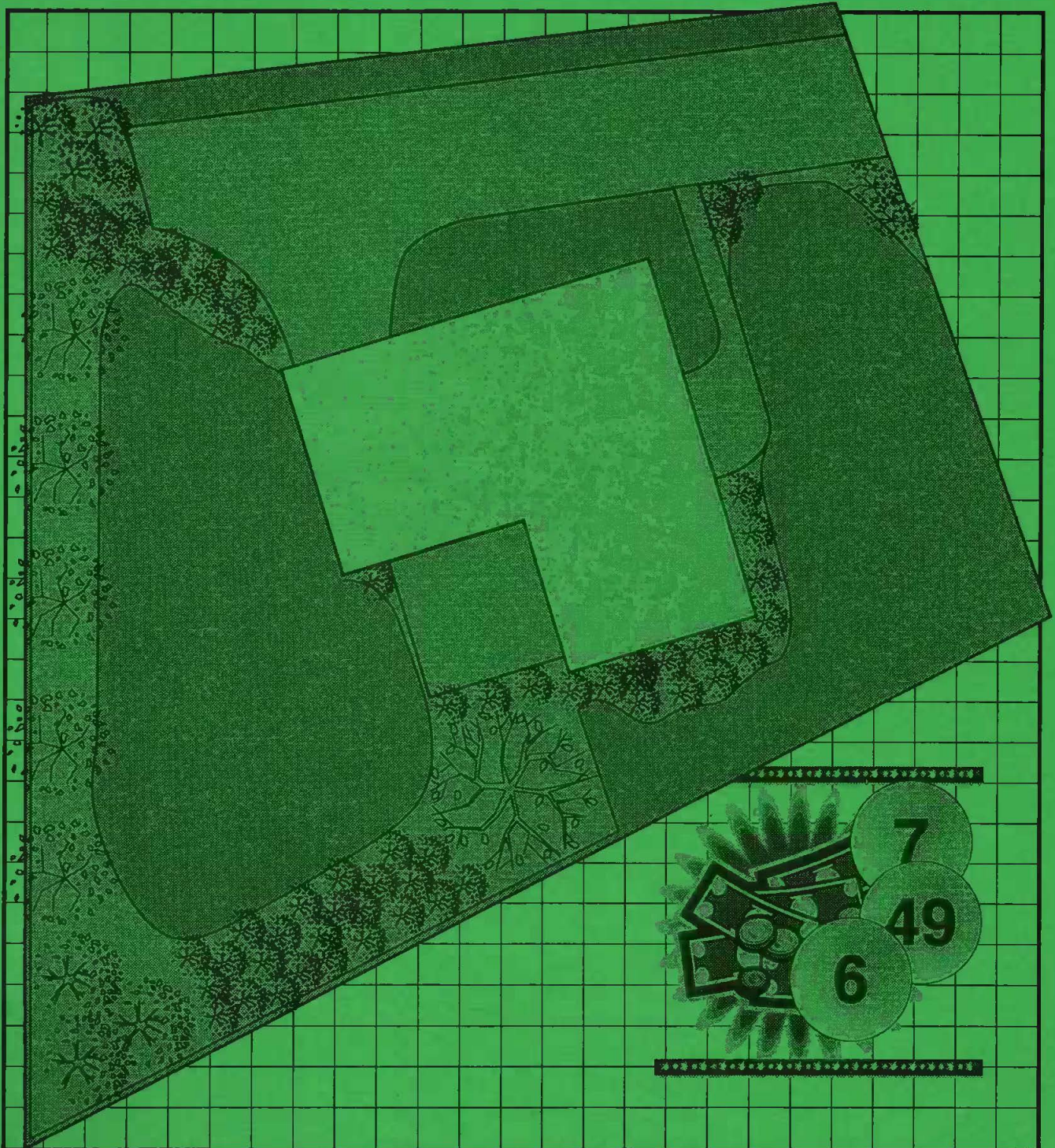
delta-k

JOURNAL OF THE
MATHEMATICS COUNCIL
OF THE ALBERTA
TEACHERS' ASSOCIATION



Volume 41, Number 1

February 2004



GUIDELINES FOR MANUSCRIPTS

delta-K is a professional journal for mathematics teachers in Alberta. It is published to

- promote the professional development of mathematics educators, and
- stimulate thinking, explore new ideas and offer various viewpoints.

Submissions are requested that have a classroom as well as a scholarly focus. They may include

- personal explorations of significant classroom experiences;
- descriptions of innovative classroom and school practices;
- reviews or evaluations of instructional and curricular methods, programs or materials;
- discussions of trends, issues or policies;
- a specific focus on technology in the classroom; and
- a focus on the curriculum, professional and assessment standards of the NCTM.

Manuscript Guidelines

1. All manuscripts should be typewritten, double-spaced and properly referenced.
2. Preference will be given to manuscripts submitted on 3.5-inch disks using WordPerfect 5.1 or 6.0 or a generic ASCII file. Microsoft Word and AmiPro are also acceptable formats.
3. Pictures or illustrations should be clearly labelled and placed where you want them to appear in the article. A caption and photo credit should accompany each photograph.
4. If any student sample work is included, please provide a release letter from the student's parent allowing publication in the journal.
5. Limit your manuscripts to no more than eight pages double-spaced.
6. A 250-350-word abstract should accompany your manuscript for inclusion on the Mathematics Council's website.
7. Letters to the editor or reviews of curriculum materials are welcome.
8. *delta-K* is not refereed. Contributions are reviewed by the editor(s), who reserve the right to edit for clarity and space. **The editor shall have the final decision to publish any article.** Send manuscripts to A. Craig Loewen, Editor, 414 25 Street S, Lethbridge, Alberta T1J 3P3; fax (403) 329-2412, e-mail loewen@uleth.ca.

Submission Deadlines

delta-K is published twice a year. Submissions must be received by August 31 for the fall issue and December 15 for the spring issue.

MCATA Mission Statement

Providing leadership to encourage the continuing enhancement of teaching, learning and understanding mathematics.

CONTENTS

Comments on Contributors	3	
Editorial	4	<i>Klaus Puhlmann</i>
FROM YOUR COUNCIL		
From the President's Pen	5	<i>Cynthia Ballheim</i>
The Right Angle	6	<i>Deanna Shostak</i>
MCATA Executive in Action	7	<i>Klaus Puhlmann</i>
NCTM/MCATA 2003 Regional Conference		
Message from the Conference Chair	10	<i>Cynthia Ballheim</i>
A Pictorial Potpourri	10	<i>Klaus Puhlmann</i>
READER REFLECTIONS		
Some Processes for Changing Curriculum Beg Revisiting	15	<i>Werner Liedtke</i>
Why Do Numerate Students/Adults Lack Conceptual Understanding of Division?	16	<i>Werner Liedtke</i>
Erratum	20	<i>Natali Hritonenko</i>
STUDENT CORNER	21	

Copyright © 2004 by The Alberta Teachers' Association (ATA), 11010 142 Street NW, Edmonton, Alberta T5N 2R1. Permission to use or to reproduce any part of this publication for classroom purposes, except for articles published with permission of the author and noted as "not for reproduction," is hereby granted. *delta-K* is published by the ATA for the Mathematics Council (MCATA). EDITOR: Klaus Puhlmann, PO Box 6482, Edson, Alberta T7E 1T9; fax (780) 723-2414, e-mail klaupuhl@gyrd.ab.ca. EDITORIAL AND PRODUCTION SERVICES: Document Production staff, ATA. Opinions expressed herein are not necessarily those of MCATA or of the ATA. Address correspondence regarding this publication to the editor. *delta-K* is indexed in the Canadian Education Index. ISSN 0319-8367

Individual copies of this journal can be ordered at the following prices: 1 to 4 copies, \$7.50 each; 5 to 10 copies, \$5.00 each; over 10 copies, \$3.50 each. Please add 5 per cent shipping and handling and 7 per cent GST. Please contact Distribution at Barnett House to place your order. In Edmonton, dial (780) 447-9400, ext. 321; toll free in Alberta, dial 1-800-232-7208, ext. 321.

NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

NCTM Standards in Action

The Content Standard: Data Analysis and Probability	22	<i>Klaus Puhlmann</i>
The Probability of Winning a Lotto Jackpot Twice	25	<i>Emeric T. Noone</i>
Teaching the Mean Meaningfully	28	<i>John C. Uccellini</i>
Problem Solving: Dealing with Data in the Elementary School	31	<i>Harry Bohan, Beverly Irby and Dolly Vogel</i>

TEACHING IDEAS

Calendar Math	36	<i>Art Jorgensen</i>
Activities for the Middle School Math Classroom: Games and Problem Solving	37	<i>A. Craig Loewen</i>
About Integration in Teaching College Mathematics and Computer Programming	47	<i>Yuri Yatsenko</i>
Student Projects in the Educational Process	51	<i>Natali Hritonenko</i>
Edmonton Junior High Mathematics Contest 2001	53	<i>Andy Liu</i>
Edmonton Junior High Mathematics Invitational 2001	55	<i>Andy Liu</i>
Fun with Mathematics: Challenging the Reader	58	<i>Andy Liu</i>

FEATURE ARTICLES

Infinite Sets and Georg Cantor	64	<i>Sandra M. Pulver</i>
On Vectorial Proofs, Circumradii and Equilateral Triangles	68	<i>David E. Dobbs</i>
Fractions Are Much More Than Pies	72	<i>Jerry Ameis</i>
Considering Correlation Coefficients: The Meaning of Zero Correlation	76	<i>Bonnie H. Litwiller and David R. Duncan</i>
Lessons Learned from <i>Inside the Classroom</i>	78	<i>Nancy Drickey</i>

MATHEMATICAL PROBLEM SOLVING FOR THINKERS

Geometry in Landscaping—What's the Diameter?	81	<i>Klaus Puhlmann</i>
--	----	-----------------------

HISTORICAL CORNER

Gauss and the Regular Heptadecagon	82	<i>William Dunham</i>
------------------------------------	----	-----------------------

COMMENTS ON CONTRIBUTORS

Jerry Ameis is a professor of mathematics education at the University of Winnipeg in Winnipeg, Manitoba. He has a special interest in the meaningful learning of mathematics and in using the Internet to support mathematical learning.

Cynthia Ballheim is a vice-principal at Father Lacombe High School in Calgary, Alberta.

Harry Bohan is a professor of mathematics education at Sam Houston State University in Huntsville, Texas.

David E. Dobbs is a professor of mathematics at the University of Tennessee in Knoxville, Tennessee.

Nancy Drickey is an assistant professor of education at Linfield College in McMinnville, Oregon.

David R. Duncan is a professor of mathematics at the University of Northern Iowa in Cedar Falls, Iowa.

William Dunham is the Koehler professor of mathematics at Muhlenberg College in Allentown, Pennsylvania, and the author of *Journey Through Genius: The Great Theorems of Mathematics* and of *Euler: The Master of Us All*.

Natali Hritonenko is a professor of mathematics at the University of Texas in Dallas, Texas.

Beverly Irby is a professor in mathematics education at Sam Houston State University in Huntsville, Texas.

Art Jorgensen is a retired junior high school principal from Edson, Alberta, and a former longtime MCATA executive member.

Werner Liedtke is a professor emeritus, University of Victoria in Victoria, British Columbia.

Bonnie H. Litwiller is a professor of mathematics at the University of Northern Iowa in Cedar Falls, Iowa.

Andy Liu is a professor of mathematics in the Department of Mathematical and Statistical Sciences at the University of Alberta in Edmonton, Alberta.

A. Craig Loewen is a professor at the University of Lethbridge in Lethbridge, Alberta.

Emeric T. Noone teaches at Longwood College in Farmville, Virginia. He is primarily interested in undergraduate probability and statistics.

Klaus Puhlmann is a retired superintendent of schools for Grande Yellowhead Regional Division No. 35 and MCATA journal editor.

Sandra M. Pulver is a professor of mathematics at Pace University in New York.

Deanna Shostak is high school mathematics teacher at Alberta College in Edmonton, Alberta, and is on secondment with Alberta Learning as the Applied Mathematics 30 exam manager. She is also MCATA's Alberta Learning representative.

John C. Uccellini teaches at Indiana Area Senior High School in Indiana, Pennsylvania. He is actively involved with training elementary and middle school teachers in quantitative literacy.

Dolly Vogel is a graduate student at Sam Houston State University and a teacher of sixth-grade mathematics at Houser Intermediate School, Conroe Independent School District in Conroe, Texas.

Yuri Yatsenko is a professor in computer information systems at Houston Baptist University in Texas. His interests include teaching and research in mathematics, economics and computer-related areas.