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Mathematics Council NEWSLETTER

The Alberta Teachers' Association

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A new school year begins. With a new year come new beginnings, new opportunities, new challenges, new routines, and new chances for resolve. Let those resolves include professional growth and professional involvement. Consider involvement in Council activities. The Mathematics Council needs two more directors. There is a particular need for directors representing Divisions 1, 2, or 3. If you know of someone who is able to contribute to the organization, or if you are willing to serve, contact MCATA president Bob Mitchie.

As your newsletter editors, we solicit your help. If the newsletter is to serve a valuable and useful function in the Mathematics Council, then we need input. Comments on current issues, reports on successful classroom practices, and reactions to curriculum developments are encouraged and welcomed. Send contributions to the newsletter co-editors:

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President's Message

Welcome back to another school year. I hope that you are all returning relaxed and renewed. School year beginnings are always exciting as we anticipate the happenings for another year.

We were all very sorry to hear of the passing, in July, of Dr. Geoff Butler. Geoff's contribution to the Mathematics Council will be missed. Geoff served as the mathematics representative on the executive.

I see the purpose of the Mathematics Council as working to improve mathematics through communication and through exchange of ideas on mathematics instruction and policies. The Council attempts to meet this goal through its publications and its annual conference.

We wish to welcome the co-editors of the newsletter, Francis Somerville and Ritchie Whitehead. We look forward to working with them and supporting the contributions that they will make to Council. I know that Francis and Ritchie would welcome any ideas or articles that you might have.

John Percevault continues to do an outstanding job as editor of Delta-K. We look forward to the three issues planned for this school year. Delta-K offers an opportunity for all of us to present our ideas on the various themes that have been chosen--effective teaching in mathematics, problem solving in junior high school, and the use of technology in teaching mathematics. Again, I would encourage everyone to make submissions to John on any of these topics or on any matters of special interest to you.

Another vehicle that allows the exchange of ideas is the annual conference, held in October. This year, we are particularly pleased to be sponsoring the National Teachers of Mathematics Canadian Regional Conference in Edmonton on October 16 to 18 at the Westin Hotel. Dr. Joan Worth and her many committees have worked very hard to arrange for an excellent slate of presenters and some very exciting social events. We look forward to seeing you in Edmonton in October.

Have a great year,

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Math Problems

Fractions to Decimals

Some fractions have terminating decimals, but most have a cycle that repeats endlessly. When changing fractions to decimals, a number of interesting questions arise.

1. Which basic fractions will result in terminating decimals?
2. If a basic fraction terminates, how many digits will it have?
3. What is the longest possible cycle when a basic fraction is changed to a decimal?
4. What is the length of the cycle for a given basic fraction?

The BASIC program that follows should help in the investigation of these problems.

```
100 REM Fractions to Decimals - Francis Somerville
110 REM
120 INPUT "Numerator";N
130 INPUT "Denominator";D
140 INPUT "Number of places after the decimal";P
150 Q = INT(N/D)
160 PRINT Q; ".";
170 FOR I = 1 TO P
180     Q = INT(N*10/D)
190     N = 10*N-D*Q
200 NEXT I
220 END
```

Answers

1. Only fractions with denominators that are multiples of 2 and 5 will terminate. For example: 2, 4, 5, 8, 10, 16, 20.
2. If 2 is a factor of the denominator x times, and 5 is a factor y times, then the length of the decimal will be the larger of x and y .
3. If the denominator is n , the longest possible cycle is $n-1$.
4. Sorry! Perhaps you can tell me.

Reference

Kurosaka, Robert. "Repeating Decimals." Byte, November 1985, pp. 433-40.

Call for Manuscripts for *Delta-K*

Issue

Theme

January 1987

"Problem Solving in Junior High"
Manuscripts due November 15, 1986

May 1987

"Technology and Mathematics Education"
Manuscripts due March 1, 1987

Manuscript Guidelines

- Submit two double-spaced manuscripts.
 - Restrict manuscripts to 14 pages.
 - Briefly describe the author, including position, interests, and contribution to mathematics.
- Authors will be notified whether articles will be published.
 - Manuscripts that are not published will be returned.
- Send manuscripts to: John B. Percevault, Delta-K Editor, 2510 - 22 Avenue S, Lethbridge, Alberta T1K 1J5.

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The Mathematics Council of the
Alberta Teachers' Association

A. Name _____

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B. Category of Membership in The Alberta Teachers' Association
(check one):

- Active Associate Student
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C. Category of Membership in MCATA

- New Renewal

D. Membership Fee Enclosed:

Make cheque payable to Alberta Teachers' Association (check one)

- Regular \$20.00 Affiliate \$20.00
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