

are in arithmetic sequence, since the two differences are equal as shown in (*). Therefore, the three reciprocals AD, AB, and AE are in harmonic sequence and hence the statement by early geometers that a cross-ratio equal to -1 gives rise to a harmonic sequence and is consequently called "harmonic" has been confirmed.

Yes, there is a relation between cross-ratio equal to -1 and music ! --- and in elementary geometry a relation between the separation of a third side of a triangle by the interior and exterior angle bisectors of the opposite angle and music !

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Taylor, E. H. and Bartoo, G. C. An Introduction to College Geometry. New York: The Macmillan Company, 1949, p. 67.

CAN (SHOULD) HIGH SCHOOL TEACHERS OF MATHEMATICS BE MATHEMATICIANS!

Ray Heitger
Ottawa Hills High School
Toledo, Ohio

If your high school program in mathematics is to be the type of program which will provide the students with the benefits they should get from it, you and your colleagues must keep up with the mathematics being used today and with possible applications of that mathematics. Some ideas about how you can accomplish this, and which have worked well for me, are the following.

- Read
 - * Books about mathematics
 - * Books about something else (e.g., physics)
- Lunch time seminars
- Math days at universities
- Talk to other teachers.
 - * E.g.: science, social studies, business

- * Find applications of mathematics.
- Be involved in professional organizations.
 - * E.g.: OCTM, NCTM, MAA
 - * Attend meetings.
 - * Get and read journals.
 - * Comap - consortium
 - * NCTM Agenda For Action
- Do some research.
 - * Formal
 - * In class
 - * Solve problems

LUNCH TIME MATH TALKS

One of the things which have been of benefit to both the students and some teachers are short presentations given at lunch time. The presentations are given by teachers, students, and occasionally a parent. A list of some topics presented follows.

- "The Pythagorean Theorem" (Student)
- "The Problem" (Student)
- "The Binomial Theorem" (Student)
- "Georg Cantor" (Student)
- "Leonard Euler" (Student)
- "Pierre Fermat" (Student)
- "The Normal Curve" (Student)
- "pi are round: a discussion of 3.14159..."
- "Two Unsolved Problems in Mathematics" (Student)
- "The Swimming Pool Problem: an application of mathematics"
- "Square and Triangular Numbers: an Original Result"
- "The 1985 Math-Science Day at OSU" (Student)
- "Mathematics and Religion: was Spinoza Right?"
- "Is Mathematics as Paradoxical as English?"
- "Action of Antifungal Agents on Candida albicans" (Student)
- "Fatigue Test of Polyvinyl Chloride" (Student)
- "Thermal Conductivity of Encapsulation Plastics for Integrated Circuits" (Student)
- "An Application of the Calculus" (Student)
- "An Application of Mathematics to String Art" (Parent)

QUOTES

To teach a course, you must know much more of the subject than you can possibly put into the course (Halmos, 1985, p. 135).

A teacher who is not always thinking about solving problems--ones he does not know the answer to--is psychologically simply not prepared to teach problem solving to his students (Halmos, 1985, p. 322).

Everyone who teaches, even if what he teaches is high school algebra, would be a better teacher if he thought about the implications of the subject outside the subject, if he read about the connections of the subject with other subjects, if he tried to work out the problems that those implications and connections suggest--if, in other words, he did research in and around high school algebra (Halmos, 1983, p. 199).

Those who complete a strong high school mathematics program reach, roughly, the middle of the seventeenth century while the first year of college calculus carries some students only as far as eighteenth century mathematics (Steen, 1980, p. 3).

To cure our ills, while keeping what we have, requires more science and more intelligent science. ... And to have more and better science, we need more and better scientists (Asimov, 1973, p. 299).

Every intelligent, concerned layman ought to take science seriously (Asimov, 1973, p. 299).

I do not advocate teaching history or philosophy in mathematics courses. Rather, I maintain that the teacher needs to have a thorough acquaintance with them in order to teach more effectively (Long, 1986, p. 618).

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(Editor's Note: This article is a summary of a presentation made by Mr. Heitger at the Annual Meeting of OCTM in March 1987. After hearing the presentation, I received his permission to include material from his handout in this Journal.)

STATE OF THE MEMBERSHIP MESSAGE

Sister Mary Theresa Sharp, SND
OCTM Membership Secretary
Notre Dame College of Ohio

Mathematics education in the state of Ohio is supported by OCTM's present 2,848 members, 2,792 of whom reside throughout the state. OCTM's membership history, present state, and future in the state of Ohio are delineated in this article. If this article is to have its maximum effectiveness in influencing OCTM's future history, it is important that you take the time to answer the questions included in this article.

THE PAST

In dealing with the past, this present state-of-the-membership message refers only to the immediate past from December 1985 until March 1987. A few months prior to December 1985, Bill Hunt mentioned to me that OCTM would be in need of a membership secretary. At the December 1985 Board Meeting, OCTM President Bill Hunt sought and obtained the approval of the at-that-time President-Elect, William Speer, and the remainder of the OCTM Board for my appointment to that position. Bill also obtained the approval of the Board for the purchase of a 20 megabyte Sider hard disk for membership data storage and sorting.

The first task facing me was designing a database file for maintaining our membership records using the software, DB Master by Stoneware, a package considerably more powerful than the one