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Humanistic Mathematics Network Journal

Issue #20 July 1999

The
problem
was to
simplify the
fraction

$$\left(\frac{9a^3b}{7-x} \right) \left(\frac{2x-14}{3ab^7} \right)$$

The child's answer was

$$\frac{-2(3a^2)}{b^6}$$

This problem was initially given zero points
out of 25. To find out why, see page 3.

INVITATION TO AUTHORS

Essays, book reviews, syllabi, poetry, and letters are welcomed. Your essay should have a title, your name and address, e-mail address, and a brief summary of content. In addition, your telephone number (not for publication) would be helpful.

If possible, avoid footnotes; put references and bibliography at the end of the text, using a consistent style. Please put all figures on separate sheets of paper at the end of the text, with annotations as to where you would like them to fit within the text; these should be original photographs, or drawn in dark ink. These figures can later be returned to you if you so desire.

Two copies of your submission, double-spaced and preferably laser-printed, should be sent to:

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Essays and other communications may also be transmitted by electronic mail to the editor at awhite@hmc.edu, or faxed to (909) 621-8366. The editor may be contacted at (909) 621-8867 if you have further questions.

The Journal uses the programs Microsoft Word, PageMaker and Photoshop for the Macintosh. If you used any of these programs to prepare your paper or figures, it would be very helpful to us if you sent a copy of the files on diskette along with the printed copies of the paper.

NOTE TO LIBRARIANS

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COVER

Educational blizzard: Inside the Koch Snowflake from Catherine A. Gorini's essay on the relation between art and mathematics is an example of poor math teaching given by Jerome Dancis. In this issue Dancis, Jack Lochhead and Frances Kurwahara Lang offer views on the state of K-12 mathematics education.

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From the Editor

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The poems featured in this issue are by sixth and seventh grade students taught by Margaret Schaffer at Hale Middle School in Los Angeles, CA.

From Newsletter #1

Dear Colleague,

This newsletter follows a three-day **Conference to Examine Mathematics as a Humanistic Discipline** in Claremont 1986 supported by the Exxon Education Foundation, and a special session at the AMS-MAA meeting in San Antonio January 1987. A common response of the thirty-six mathematicians at the conference was, "I was startled to see so many who shared my feelings."

Two related themes that emerged from the conference were 1) teaching mathematics humanistically, and 2) teaching humanistic mathematics. The first theme sought to place the student more centrally in the position of inquirer than is generally the case, while at the same time acknowledging the emotional climate of the activity of learning mathematics. What students could learn from each other and how they might come to better understand mathematics as a meaningful rather than arbitrary discipline were among the ideas of the first theme.

The second theme focused less upon the nature of the teaching and learning environment and more upon the need to reconstruct the curriculum and the discipline of mathematics itself. The reconstruction would relate mathematical discoveries to personal courage, discovery to verification, mathematics to science, truth to utility, and in general, mathematics to the culture within which it is embedded.

Humanistic dimensions of mathematics discussed at the conference included:

- a) An appreciation of the role of intuition, not only in understanding, but in creating concepts that appear in their finished versions to be "merely technical."
- b) An appreciation for the human dimensions that motivate discovery: competition, cooperation, the urge for holistic pictures.
- c) An understanding of the value judgments implied in the growth of any discipline. Logic alone never completely accounts for what is investigated, how it is investigated, and why it is investigated.
- d) A need for new teaching/learning formats that will help discourage our students from a view of knowledge as certain or to-be-received.
- e) The opportunity for students to think like mathematicians, including chances to work on tasks of low definition, generating new problems and participating in controversy over mathematical issues.
- f) Opportunities for faculty to do research on issues relating to teaching and be respected for that area of research.

This newsletter, also supported by Exxon, is part of an effort to fulfill the hopes of the participants. Others who have heard about the conferences have enthusiastically joined the effort. The newsletter will help create a network of mathematicians and others who are interested in sharing their ideas and experiences related to the conference themes. The network will be a community of support extending over many campuses that will end the isolation that individuals may feel. There are lots of good ideas, lots of experimentation, and lots of frustration because of isolation and lack of support. In addition to informally sharing bibliographic references, syllabi, accounts of successes and failures. . . the network might formally support writing, team-teaching, exchanges, conferences. . . .

Alvin White
August 3, 1987