TCU Math News Letter

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Science is a differential equation. Religion is a boundary condition.

--- Alan Turing

[Editor: Dr. Rhonda Hatcher](#) and [Archive of Newsletters](#)

Christmas Buffet

The TCU Mathematics Department will hold its annual Christmas Buffet from 11:00 a.m. to 1:00 p.m. on Thursday, December 10 in Winton Scott Hall 171. All TCU faculty, mathematics majors, and graders and their families are invited to come. The buffet is a nice opportunity for a study break.

If you would like to attend, please come to the Math Department office to sign up.

Sigma Xi and Phi Beta Kappa Lecture on Rain Forests

The TCU Chapters of Sigma Xi and Phi Beta Kappa will jointly host a talk presented by Dr. Mario Olmos of the Botantical Research Institute of Texas. He will present his talk "Biological Diversity in Central American Rain Forests" in Lecture Hall 4 of the Sid Richardson Building on Wednesday, December 9 at 7:30 p.m.

This is a public lecture that should be accessible to students of all levels. All members of the community are invited to attend.

Frank Stones Lectureship Series Talk on January 27

Professor Mark Brittenham of the University of Texas at Austin will be the first speaker the the spring semester for the Frank Stones Research Lectureship Series. He will present the talk "Solitary waves, singularities and the formation of sand bars" on Wednesday, January 27.

The talk will be presented at 4:00 p.m. in Winton Scott Hall 145, and refreshments will be served in Winton Scott Hall 171 at 3:30 p.m. All TCU students, faculty, and other interested members of the community are invited to attend the lectures.

Carleton and St. Olaf Colleges' Summer Mathematics Program

The Mathematics Departments of Carleton College and St. Olaf College in Northfield, Minnesota will run a four-week summer mathematics program for talented undergraduate women in mathematics. This program, which is in its fifth consecutive year, will run from June 27 to July 25.

The students in the program take two courses where they are introduced to mathematics beyond calculus that students do not usually have the opportunity to study in a standard undergraduate mathematics program. Through the courses, the students will have the opportunity to their skills in conjecture and proof, writing mathematics, and oral presentation. Students will not receive course credit for, or grades in, these courses. Students selected for the program receive a $1300 stipend, campus room and board, and a travel allowance.

To be eligible for this program, applicants must be female mathematics majors who are finishing their first or second year of undergraduate work, who are enrolled in an American college or university, and who have completed linear algebra but have not completed more than one year of mathematics past linear algebra. Students interested in applying can pick up an application from Dr. Robert Doran in the TCU Mathematics Department Office or from Dr. Rhonda Hatcher in Winton Scott Hall 142. The application deadline is February 28.

Solution to the November 1998 Problem of the Month

Problem: One page is torn out of a book. The sum of the numbers on the remaining pages (numbered from page 1 to the last printed page) is 275,349. (Corrected from original.) What page numbers were on the page torn out and how long was the book? (You must verify that your answer works and justify that no other one does.)

Solution: The sum of the page numbers of a book with n pages is $n(n+1)/2$. Numbers totaling at least 1 and at most $(n-1) + n = 2n-1$ are torn out, so

$$\frac{n^2 - 3n + 2}{2} \leq 275{,}349 \leq \frac{n^2 + n - 1}{2}.$$

It follows that n is either 742 or 743. The number of the pages torn out will be $742 \cdot 743/2 - 275{,}349 = 304$ or $743 \cdot 744/2 - 275{,}349 = 1047$, respectively. On back-to-back pages, one number will be even and the other odd, so the book has 743 pages.

This month's problem was solved by undergraduate Tim Matthews.

Problem of the Month

What is the shortest possible total length of a path in the plane from the point (5,3) to a point on the line y = x and then to a point on the x-axis?

Students and others are invited to submit solutions to Dr. George Gilbert (Math Dept. Office or P.O. 298900). Correct solutions submitted by persons who are not members of the TCU math faculty will be acknowledged in the next issue of the newsletter. Note that a correct solution is an answer and a justification of its correctness. The solution to the problem will be published in the next edition of the newsletter.