
TCU Math News Letter

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All the pictures that science now draws of nature are mathematical pictures

--- Sir James Hopwood Jeans (1930)

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

Halloween Parabola Meeting on October 30

On Thursday, October 30, the day before Halloween, the Parabola club will host 'Mathematics and Horror,' featuring the Simpson's Treehouse of Horror. In one episode of the Simpsons, Homer enters the third dimension, and lots of freaky math blows by him. Come and find out what that is, if you dare (evil snicker) . . . Ha Ha Ha Ha Ha. . . .

We will have snacks and a best costume competition at 3:00 p.m. in Tucker Technology Center 314, followed by a talk and movie at 3:30 p.m. in TTC 138.

Guest Speakers from Texas A&M

Professors Marvin Tretkoff and Professor Paula Cohen of Texas A & M will be visiting the TCU Mathematics Department on Monday, October 27.

Professor Tretkoff will give an undergraduate level talk, **The classical periods of abelian integrals** at 12 noon, and Professor Cohen will give a more advanced level talk, **Transcendence of values and periods of special functions.** at 4:00 p.m. All students, faculty, and others interested in the talks are invited to attend. Refreshments will be served.

Please watch the TCU Mathematics Department web page at www.math.tcu.edu for details.

Putnam Exam

The Sixty-Fourth Annual William Lowell Putnam Mathematical Competition will be held on Saturday, December 6, 2003, from 9 a.m. to noon and 2 to 5 p.m. The questions require different levels of mathematical background, and all require a bit of ingenuity to solve. The scores on the exam are typically quite low, and even answering a couple of questions is considered an excellent performance. The competition is open to undergraduates enrolled in colleges and universities of the United States and Canada who have not yet received a college degree. Any college or university with at least three entrants also enters the team competition. Prizes are awarded to the top twenty-five finishers and to the departments of mathematics of the institutions with the five top ranking teams.

Copies of the exam from last year are posted on the bulletin board next to the 2nd floor elevator of the

Tucker Technology Center. Those interested in signing up to take the Putnam Exam this year should contact Professor George Gilbert (TTC 319 or 257-6061 or g.gilbert@tcu.edu).

Solution to the Erroneous September 2003 Problem of the Month

Problem: Show that the equation $x^2 + y^2 = a^3$ always has integer solutions whenever a is a positive integer.

Solution: With the erroneous plus sign, the claim is false. For instance, there is no integer solution when $a=3$. If such a solution existed, one of x^2 and y^2 would have to be between $27/2$ and 27 . The only perfect squares lying between these numbers are 16 and 25. However, neither $27-25=2$ nor $27-16=11$ is a perfect square.

October 2003 Problem of the Month

There was a fatal typo in last month's problem, so this month's problem is the corrected version. It was the first problem in the first year (1966) of the annual Indiana College Mathematics Competition. Show that the equation $x^2 - y^2 = a^3$ always has integer solutions whenever a is a positive integer.

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.

The TCU Math Newsletter will be published each month during the academic year. Dr. Hatcher: Editor; Dr. Gilbert: Problem Editor; Dr. Doran: Thought of the Month Editor. Items which you would like to have included should be sent to Dr. Hatcher (Math Dept. Office or P.O. 298900).