
TCU Math News Letter

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A reality completely independent of the spirit that conceives it, sees it, or feels it, is an impossibility. A world so external as that, even if it existed, would be for ever inaccessible to us.

--- Henri Poincaré

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

TCU Hosts Texas Geometry and Topology Conference

The Spring 2001 Texas Geometry and Topology Conference will be held at Texas Christian University February 23 through February 25. The conference was organized by Professors Ken Richardson, Efton Park, Igor Prokhorenkov, and Scott Nollet of the TCU Mathematics Department.

The conference will feature the following speakers: Ara Basmajian of the University of Oklahoma, Philip Bowers of Florida State University, Leonid Friedlander of the University of Arizona, Razvan Gelca of Texas Tech University, Franz Kamber of the University of Illinois, John Roe of The Pennsylvania State University, Machiel van Frankenhuyzen of Rutgers University, and Frederico Xavier of the University of Notre Dame.

The Texas Geometry and Topology Conference is supported by the National Science Foundation and Texas A&M University. Everyone is welcome. There are no registration fees. More information about the conference can be found at the web site <http://www.math.tcu.edu/math/faculty/TGTCU.html>.

Four Undergraduate Math Talks In February

The TCU Mathematics Department will host four talks for undergraduates during the month of February. Dr. Sarah Ann Stewart of Vanderbilt University will present the talk **Math in Murder Mysteries: Using Exponential Functions in Mathematical Modeling** on Monday, February 12 at 3:30 p.m. On Thursday, February 15, Professor Kristi Rittby of TCU will present a talk at 4:00 p.m. Professor Mony Harden of TCU will present his talk on Tuesday, February 20 at 3:30 p.m. Dr. Victoria Rayskin of Boston University and Suffolk University will present a talk on Friday, February 23 at 3:30 p.m. Watch the Parabola bulletin board and the Math Department web page for titles of the last three talks. Math majors will earn 10 points in the spring Bucks for Books lottery for each talk attended.

Career Night February 21

TCU Career Services will sponsor a Career Night this year on Wednesday, February 21 from 4:00 p.m. to 7:00 p.m. in Daniel Meyer Coliseum. Employers represented at Career Night will include publishing companies, advertising agencies, government agencies, hospitals, medical management companies, accounting firms, and banks, to name just a few of the up to 60 employers who will set up booths. A

complete list of employers will be available at a later date and will be listed at the Career Services web site <http://www.cpl.tcu.edu/>. Many of the employers are interested in students with mathematics or computer science majors. Students looking for internships, summer jobs, or full-time employment opportunities are encouraged to attend.

Solution to the December 2000/January 2001 Problem of the Month

Problem: *Are there real numbers x and y for which $x + y = 1$, $x^2 + y^2 = 2$, $x^3 + y^3 = 3$? (From the Ontario Secondary School Mathematics Bulletin.)*

Solution: There are no such real numbers. The straightforward way to see this is to replace y with $1-x$ in the second equation, solve the resulting equation by the quadratic formula, and show that neither root leads to a solution of the third equation. Another, perhaps slicker, way is as follows:

$$\begin{aligned}1 &= (x + y)^3 = x^3 + y^3 + 3(x + y)xy \\ &= (x^3 + y^3) + 3(x + y) \cdot \frac{1}{2} ((x + y)^2 - (x^2 + y^2)) \\ &= 3 + 3 \cdot \frac{1}{2} (1 - 2) = \frac{3}{2},\end{aligned}$$

a contradiction that shows there is no solution.

Math major Dustin Sitar correctly solved this month's problem.

Problem of the Month

This month's problem is due to J. Ennis and originally appeared in the journal *Function*. A deck of 52 playing cards is shuffled and placed face down on a table. Cards are removed from the top of the pile until a black ace is encountered. In which position is this ace most likely to be found?

(Remember that math majors will earn 10 points in the Bucks for Books lottery for a correct solution. For details and other ways to earn points, refer to the September 2000 Newsletter or visit the web page www.math.tcu.edu/math/BucksForBooks.html.)

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).