TCU Math Newsletter

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There is a mighty big difference between good, sound reasons and reasons that sound good.

– Burton Hills

First Parabola Meeting on September 20

Professor Robert Doran, the chair of the TCU Mathematics Department, will present the first Parabola talk of the 94-95 academic year. His talk is entitled "Solution of a Famous Open Problem," and will be presented in Winton Scott Hall 145 at 3:30 p.m. on Tuesday, September 20. Refreshments will be served at 3:00 p.m. in WSH 171.

Parabola is the TCU undergraduate mathematics club. All students and faculty interested in mathematics are invited to join. The meetings of Parabola usually consist of a half hour social meeting with refreshments followed by a talk. The talks are at an undergraduate level and offer a nice way of seeing some interesting mathematics and mathematical applications outside of the usual classroom setting. Parabola will sponsor several talks this year, along with the annual picnic in the spring and possibly some other activities.

All TCU students are encouraged to attend Parabola meetings, whether or not you are a member. Anyone interested in more information about Parabola may contact one of the three student officers: Amy Smaistrla, Teddy Donevska, and David Puente, or you may talk to the faculty sponsor of Parabola, Dr. Rhonda Hatcher.

TCU Lectureship Series

The Mathematics Department will again host the TCU Research Lectureship Series. Eight mathematicians from universities in Texas and Oklahoma will be giving lectures this year.

The first Research Lectureship series talk will be presented by Professor Robert Gompf of the University of Texas at Austin and is entitled "Exotic Four Manifolds." The talk will be presented on Tuesday, September 6 at 4 p.m. in WSH 145. Refreshments will be served in WSH 171 at 3:30. All TCU mathematics students are encouraged to attend the lectures.

Putnam Exam Sign-up and Problem Sessions

The 55th annual William Lowell Putnam Mathematical Competition will be held on Saturday, December 3. The TCU Mathematics Department will give the exam from 9 a.m. – 12 noon and 2 p.m. – 5 p.m. in Winton Scott Hall.

This competition is open only to regularly enrolled undergraduates of the United States and Canada who have not yet received a college degree. It consists of two sessions of six problems requiring ingenuity but only a modest mathematical background. Last year's exam is posted on the Problem Solving Bulletin Board in Winton Scott Hall. When looking at the exam, please be aware of the fact that answering only a few questions on the Putnam Exam is a very good performance.

Prizes and honors are awarded to the top contestants nationally. In addition to individual honors, the Putnam Competition recognizes the performance of teams from each institution with at least three registered entrants.

The deadline for signing up is early October. Please contact Professor George Gilbert in his office in WSH 141 or by telephone at 921-7335 for more information or to sign up. Dr. Gilbert is also interested in overseeing problem solving sessions for those students interested in practicing for the exam. These sessions can be as frequent or infrequent as participants would like. Any students interested in participating should let him know as soon as possible.

Solution to the May 1994 Problem of the Month

Problem: *As the end of the school year approaches, many students find themselves short on cash. Our records revealed the following unique appeal home.*

$$\begin{array}{r} S\ E\ .\ N\ D \\ +\ M\ O\ .\ R\ E \\ \hline M\ O\ N\ .\ E\ Y \end{array}$$

If each letter represents a different digit, how much did the student request; i.e. what was the bottom line?

Solution: The student requested \$106.52. Observe first that M=1. Since 1 is carried from the fourth column, this forces O=0. It follows that there is no carry from the third column, hence S=9. So far, we have

$$\begin{array}{r} 9\ E\ .\ N\ D \\ +\ 1\ 0\ .\ R\ E \\ \hline 1\ 0\ N\ .\ E\ Y \end{array}$$

Thus, E+1=N and either (i) D+E=Y, N+R=10+E or (ii) D+E=10+Y, N+R+1=10+E. Substituting E+1 for N in case (i) yields R=9, a contradiction. Therefore, (ii) holds and we find R=8. Thus, $N \leq 7$ and $E \leq 6$. Since $Y \geq 2$, $D = 10+Y-E \geq 6$. Because the letters represent distinct digits, we conclude D=7, E=5, Y=2, and N=6.

$$\begin{array}{r} 9\ 5\ .\ 6\ 7 \\ +\ 1\ 0\ .\ 8\ 5 \\ \hline 1\ 0\ 6\ .\ 5\ 2 \end{array}$$

Correct solutions were turned in by TCU undergraduates Teodora Donevska and Santiago Lombeyda, and May 1994 graduate Ted Strout.

Problem of the Month

One of two identical bags contains one red and two white marbles. The other contains one red, one white, and one blue marble. (The marbles are distinguishable only by color.) One of the bags is chosen at random and two marbles drawn. If one is red and the other white, what is the probability that the third marble in the bag is blue?

Students and others are invited to submit solutions to Dr. George Gilbert (Math Dept. Office or P.O. 32903). 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. 32903).