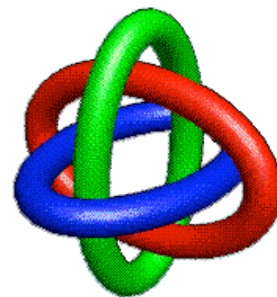


TCU MATH NEWSLETTER



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Thus, there are properties common to all things, and the knowledge of them opens the mind to the greatest wonders of nature. The principal one includes the two infinities which are to be found in all things, infinite largeness and infinite smallness.

- Blaise Pascal (1623-1662)

Putnam Mathematics Contest

The 70th Annual [William Lowell Putnam Mathematical Competition](#) will be held on Saturday, December 5, 2009, from 9:00 am to noon and 2:00 to 5:00 pm. 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.

Those interested in signing up to take the Putnam exam this year should contact Professor George Gilbert at g.gilbert@tcu.edu by 5 pm on Tuesday, October 6.

Frank Stones Mathematics Research Lectureship

The first two talks for the 2009-2010 academic year in the Frank Stones Mathematics Research Lectureship series will be in October.

The first talk will be presented by Professor Gaik Ambartsoumian of the University of Texas at Arlington. He will present the talk ***The generalized Radon transforms and their applications in tomography*** at 4 pm on Tuesday, October 6 in Tucker Technology Center 244.

The second speaker in October will Professor Frank Sottile of Texas A&M University. His talk will be at 4 pm on Tuesday, October 20. Check the TCU Mathematics Department web page at www.math.tcu.edu for more detailed information in the future.

All TCU students and faculty and other interested members of the community are invited to come to the talks. Refreshments will be served before each talk in TTC 300.

Problems and Solutions

Solution to the September 2009 Problem of the Month

Problem: For every integer n greater than 2, show there exist distinct positive integers a and b such that $2n = 1/a + 1/b$.

Solution: (Provided by graduate student Alissa Garrett.) For n greater than 2 and even,

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$$\frac{2}{n} = \frac{1}{(n+2)/2} + \frac{1}{n(n+2)/4} .$$

For n greater than 2 and odd,

$$\frac{2}{n} = \frac{1}{(n+1)/2} + \frac{1}{n(n+1)/2} .$$

October 2009 Problem of the Month

Consider a sequence (a_n) satisfying $a_{n+1} = 2a_n^2 + 1$. What is the largest possible number of consecutive perfect squares in such a sequence?

Students and others are invited to submit solutions to Dr. George Gilbert by e-mail (g.gilbert@tcu.edu) or hard copy (Math Dept. Office or TCU Box 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.