



TCU Math Newsletter

Never discuss infinity with a mathematician. You'll never hear the end if it.

- Anonymous

Actuarial Career Event at TCU on September 20

On Wednesday, September 20, TCU will host an Actuarial Career Event in TUC 139 from 12:00 pm to 2:00 pm. Nine actuarial firms will be in attendance to offer career and internship information. Last year many students received job offers as a result of this event.

All actuarial students and any other students interested in the career option should attend this event. For more information, contact Dr. Susan Staples at s.staples@tcu.edu.

Putnam Mathematics Contest

The 78th Annual William Lowell Putnam Mathematical Competition will be held on Saturday, December 2, 2017, 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. For more information about the contest visit <http://math.scu.edu/putnam/>. Those interested in signing up to take the Putnam exam this year should contact Professor George Gilbert at g.gilbert@tcu.edu by the end of the day on Friday, September 30.

Frank Stones Colloquium Talks

The Frank Stones Colloquium Series will feature two talks in September 2017. Professor Igor Zelenko from Texas A&M University will present his talk on Tuesday, September 19, and Professor Miriam Kuzbary from Rice University will present the talk "A New Concordance Group of Links" on Tuesday, September 26. Both talks will be at 3:30 pm in TUC 352 from 3:30 to 4:30 pm.

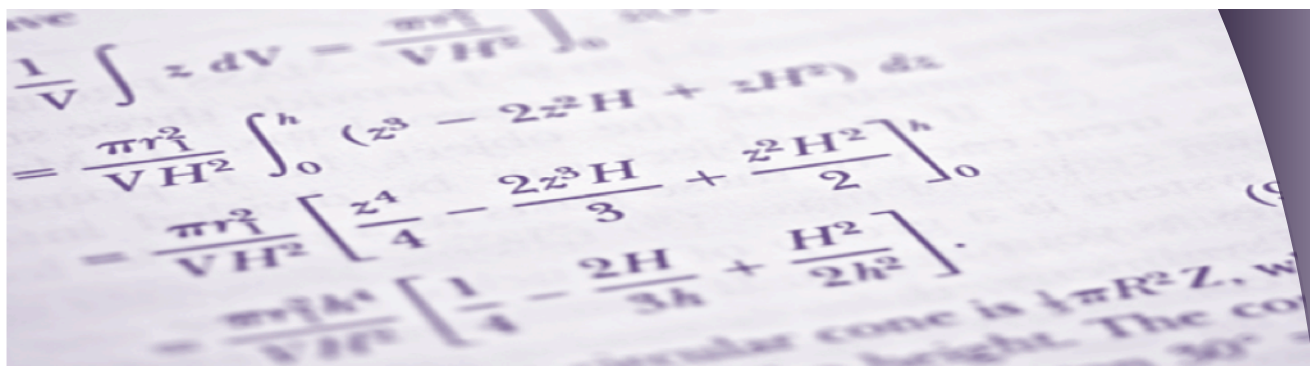
TCU students and members of the community are invited to attend the colloquium talks and the refreshments served in TUC 300 during the half hour before the start of each talk.

TCU Math Club Meeting on September 20

The TCU Math Club will hold a meeting at 5:00 pm on Wednesday, September 20 in TUC 300. The meeting will feature an informal get together with Dr. Efton Park and pizza will be served. All TCU students are invited to attend.

SERC Undergraduate Research Grant Applications Due September 22

The TCU Science and Engineering Research Center (SERC) is now accepting applications for the Fall 2017 round of SERC Undergraduate Research Grants. The grants range from \$500 to \$1500. The application form and more information about the research grants are available at www.serc.tcu.edu. The application submission deadline is Friday, September 22, 2017 at 4:00 pm.



Solution to the April 2017 Problem of the Month

Problem: What is the greatest distance between the points $(x, \sin x)$ and $(x + \pi/2, \sin(x + \pi/2))$ on the sine curve?

Solution: The distance is

$$\begin{aligned} \left[\left(\frac{\pi}{2}\right)^2 + \left(\sin\left(x + \frac{\pi}{2}\right) - \sin x\right)^2 \right]^{\frac{1}{2}} &= \left[\left(\frac{\pi}{2}\right)^2 + (\cos x - \sin x)^2 \right]^{\frac{1}{2}} \\ &= \left[\frac{\pi^2}{4} + 1 - \sin(2x) \right]^{\frac{1}{2}} \leq \left[\frac{\pi^2}{4} + 2 \right]^{\frac{1}{2}}, \end{aligned}$$

with equality, for instance, if $x = 3\pi/4$.

This month's problem was solved by Brad Beadle ('96) and by Peter and Roger Bevan.

September 2017 Problem of the Month

Given integers a_0 and b_0 , define sequences by $a_{n+1} = 2a_n - 1$ and $b_{n+1} = 2b_n + 1$. What is the largest number of integers the two sequences can have in common?

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.

Editor: Rhonda Hatcher
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