

TCU Math Newsletter

A child of five would understand this math problem. Please send someone to fetch a child of five.

- Groucho Marx

Texas Undergraduate Mathematics Conference on October 25-26

The fourteenth annual Texas Undergraduate Mathematics Conference will start on the evening of Friday, October 25 and continue through Saturday, October 26 at the University of Texas at Tyler, Texas. The conference provides an opportunity for undergraduates to give mathematical talks, play games, and network with students and faculty from around the state of Texas.

Students interested in going should register right away because students registering by October 1, 2019 will be provided housing at the Magnuston Grand Hotel and Conference Center for the night of October 25. Breakfast and Wi-Fi are included at the hotel. Students who register after October 1 must make their own hotel arrangements.

Undergraduates who would like to present a talk at the conference must submit an abstract of the talk by October 4.

For more information about the conference, to register for the conference, or to submit an abstract go the website

<http://sections.maa.org/texas/tumc/>.

Colloquium Talks on October 8 and 25

The TCU Colloquium Series will feature two speakers this month: Dr. Maddie Dawsey of the University of Texas at Tyler on Tuesday, October 8 and Dr. John Berman of the University of Texas at Austin on Friday, October 25. Both talks are at 3:30 pm in TUC 243. Refreshments will be served in TUC 300 at 3:00 pm.

Putnam Mathematics Contest and Practice

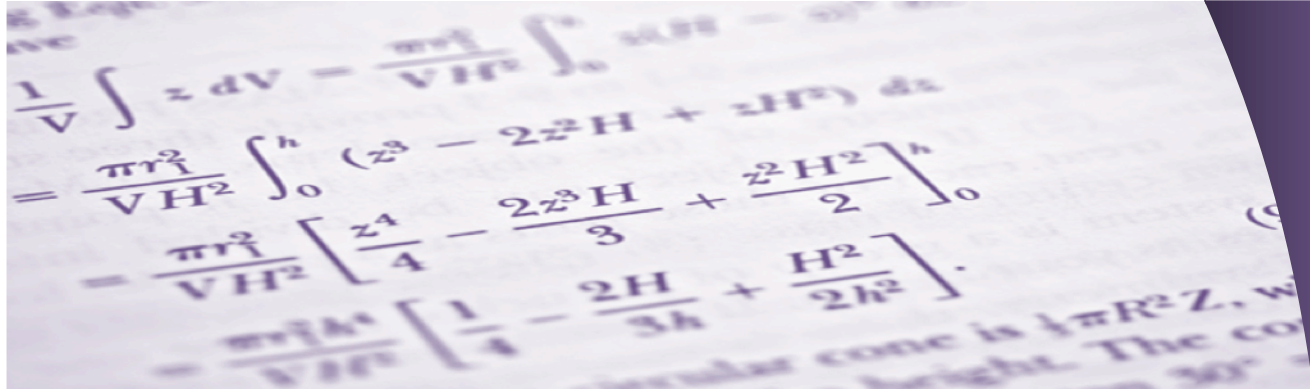
The 80th Annual William Lowell Putnam Mathematical Competition will be held on Saturday, December 7, 2019, from 9:00 am to noon and 2:00 to 5:00 pm. Details are in the September *TCU Math Newsletter* at <https://mathematics.tcu.edu/alumni/newletter-archive/>.

To sign up, please contact Dr. Gilbert at g.gilbert@tcu by Friday, October 11.

Professor Gilbert will be holding practice sessions on Thursdays, October 10 & 24 and November 7 & 21, at 3:30, and Fridays, October 18 and November 1 & 15, at 4:30. All will be in Tucker 352 and last approximately 60 to 90 minutes. Each will be independent of the others, so drop by as your schedule permits.

2019 Engineering & Technology Career Fair on October 2

The 2019 Engineering & Technology Career Fair will be at 10:00 am–1:00 pm on Wednesday, October 2 in the Tucker Technology Center. The Fair provides an opportunity for students to meet with employers about internships and part-time or full-time positions. You can register for the Fair on FrogJobs at <https://careers.tcu.edu>.



Solution to the September 2019 Problem of the Month

Problem: A deck has n red cards, n white cards, and n blue cards. Three cards are drawn at random. The probability that all three are different is an integer k times the probability all three are the same. Find n and k .

Solution: In terms of counts instead of probabilities, we have

$$n^3 = k \cdot 3 \cdot \binom{n}{3} = \frac{kn(n-1)(n-2)}{2},$$

or $2n^2 = k(n-1)(n-2)$. Because n and $n-1$ are relatively prime, $n-1$ must be a factor of 2, meaning n is 2 or 3. Only $n=3$ is possible and $k=9$.

This month's problem was solved by Brad Beadle ('96).

October 2019 Problem of the Month

Are there integers x and y (possibly negative) and $n \geq 2$ such that $x^n + y^n = 2019$?

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.