Math News

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The Pickleball Pickle

(from September)

First, the number of person-games is 8 + 12 + 14 = 34, so the number of games is half that, or 17. It's extremely helpful to understand that in a three-person round robin, every player plays at least every other game. Out of 17 then, nobody plays fewer than 8 games. Hence, Kenny's 8 games must be exactly the even-numbered ones. Further, he must have lost every one of them, including #4. But to whom did he lose?

We now know that Ned and Abby played each other in all the odd-numbered games. Since Abby's 12 games included the final 7 straight games, she played games 1, 3, 5, 7, 9, 11, 12, 13, 14, 15, 16, and 17. Since she did not play in the 4th game, Ned must have played in that one, winning against Kenny.

Solutions (using assumedly similar logic) were submitted by students Gabriel Hicks and Ricky Day. If you can solve the problem below with a nice explanation, please submit it via email to KLemmert@frostburg.edu by December 17th for inclusion in February's issue of *MATH NEWS*.

Break Out Of The Box

The circuit breaker box in your new house is in an inconvenient corner of your basement. To your chagrin, you discover none of the 100 circuit breakers are labeled, and you face the daunting prospect of matching each circuit breaker to its respective light. (Suppose that each circuit breaker maps to only one light.)

To start with, you switch all 100 lights in the house to "on," and then you head down to your basement to begin the onerous mapping process. On every trip to your basement, you can switch any number of circuit breakers on or off. You can then roam the hallways of your mansion to discover which lights are on and which are off.

What is the minimum number of trips you need to make to the basement to map every circuit breaker to every light?

[Hint: As is often the case, working a smaller problem, say using 10 instead of 100, might be enlightening.]

Postdoc Researcher Underestimated

A 30-year-old mathematician from Austria shocked both her competitors and herself when she cycled her way to gold at the Summer Olympics women's road race this year in Oyama, Japan. Apparently, she was not expected to win, so other cyclists let her pull ahead at the start, thinking they would catch up eventually. But they never did, and the amateur Anna Kiesenhofer stayed ahead for all 85 miles, finishing 75 seconds ahead of the second-place cyclist.

KME Corner

Our local chapter of KME will meet once more this semester, on Tuesday, November 30th at 6:00 in Room 223, to discuss attendance at the Shenandoah University Mathematics and Statistics (SUMS) Conference on Saturday, December 4th, and other business. The probability of pizza is near 100%.

Officers this year are Ashley Armbruster, President; Madison Green, Vice President; Jessica Farrell, Secretary; and Jay Collins, Treasurer.

Fermat's Last Theorem: A History

FSU welcomed Dr. Javier Gomez-Calderon, who is an Emeritus Professor of Mathematics at The Pennsylvania State University, and enjoyed his historical lecture on one of the world's most famous problems, Fermat's Last Theorem. (Please look that up if necessary!) He illustrated why it's so famous (glory and money, of course, made the list of reasons, as did its vast network of associated mathematical ideas) and he also discussed a myriad of those related topics (primes, geometry, trigonometry, elliptic curves, and complex numbers were but some). Its mathematical scope was of epic proportion (from Pythagoras of Samos to Andrew Wiles). That's about two and a half millennia in about one and a half hours!

Early MATH Major Passes Away

While *MATH NEWS* doesn't publish many death notices, this one seems appropriate. (See CodeyMackeyFH.com for a more complete obituary.) John Francis Lynch grew up in Frostburg, graduated LaSalle High School in Cumberland, and then enrolled at Frostburg State. At the time, there were mathematics classes, of course, but not yet a mathematics major. He asked Professor Walter Rissler if there would be a way to change that and was told to find some other interested students. Apparently, young Mr. Lynch did so, later receiving his desired degree.

Lynch also went on to earn two degrees in electrical engineering from West Virginia University and subsequently began a long and illustrious tenure with Bell Laboratories in New Jersey, earning (from Brooklyn Polytechnic) a second master's degree in Electronic Communication System Engineering and a doctorate in Communications Science.

During his career, Dr. Lynch continued his pioneering ways in the fields of submarine fiber-optic data communications and passive sonar defense systems, receiving a number of patents, the first being for Quadrature Amplitude Modulation. He passed away at age 89 on September 13, 2021, certainly having fulfilled the notion of "local boy makes good".

Math News is published for students, faculty, staff, administrators, and retirees by the Department of Mathematics.