

# MATH NEWS

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## Old Problem Solution

In the previous issue of *MATH NEWS*, you were asked to write a ten-digit number whose first digit tells the number of 0s in that number, the second digit tells the number of 1s in the number, . . . , and the tenth digit tells the number of 9s in the number.

A systematic search beginning with mostly 0s first succeeds using six 0s and other necessary digits in the number 6210001000.

## Prize Awarded for Largest Proof

Just this month, Michael Aschbacher, an innovator in the abstract field of group theory at the California Institute of Technology at Pasadena, will receive the \$75,000 Rolf Schock prize in mathematics from the Royal Swedish Academy of Sciences for his pivotal role in proving the Classification Theorem of Finite Groups, aka the Enormous Theorem. In 2004, Aschbacher and Stephen Smith of the University of Illinois at Chicago published a 1200 page guide through the last piece of the puzzle, completing the behemoth proof. The entire proof is about 15,000 pages and results from over 100 individuals' work.

The Enormous Theorem concerns groups, which can refer to a collection of symmetries, such as the rotations of a square that produce the original shape. Some groups can be built from others but, rather like prime numbers or the chemical elements, "finite simple" groups are elemental. There is an infinite number of finite simple groups, but a finite number of families to which they belong. Mathematicians have been studying groups since the 19<sup>th</sup> century, but the Enormous Theorem wasn't proposed until 1971, when Daniel Gorenstein of Rutgers University devised a plan to identify all the finite simple groups, divide them into families, and prove that no others could exist. He and hundreds of colleagues worked for a decade, leaving only a few hurdles, which were overcome by the 2004 results.

Mathematicians cannot predict how the proof will influence the future of mathematics or the sciences, but some believe applications will surely surface, though perhaps not for quite some time.

## KME Corner

The next meeting of Kappa Mu Epsilon will be held beginning at 3:30 on Wednesday, November 30 in DH103. Activities educational and entertaining will occur, sometimes simultaneously, such as maximizing pizza intake.

## Don't Recoil from Spring

**MATH major course offerings now open for Spring 2012**

236-Calculus I	MTRF	8:00am-8:50am	L. Revennaugh
236-Calculus I	MTRF	2:00pm-2:50pm	R. Forsythe
237-Calculus II	MTRF	11:00am-11:50am	F. Barnet
237-Calculus II	MTRF	2:00pm-2:50pm	F. Barnet
238-Calculus III	MTRF	11:00am-11:50am	M. Hughes
380-Int. Prob. and Stat.	TR	3:30pm-4:45pm	R. Forsythe
426-Int. Comp. Analysis	TR	2:00pm-3:15pm	G. Wojnar
432-Differential Eq.	TR	12:30pm-1:45pm	M. Hughes
440-Modern Coll. Geom.	MWF	1:00pm-1:50pm	M. Hughes
470-Math. Models & App.	MWF	10:00am-10:50am	F. Barnet

See your academic advisor to plan. Registration ends on Friday, November 18.

## "MoMath" to Open

A self-proclaimed numbers geek Glen Whitney was so tired of hearing mathematics labeled "boring" that he left his job as a hedge-fund quantitative analyst and created a \$30-million math museum in New York City. "I started this museum because I wanted people to have a chance to see the beauty, excitement, and wonder of mathematics," Whitney declared. Opening on East 26th Street in 2012, the museum—called MoMath—won't rely on old-fashioned displays of old calculators and slide rules; instead, the airy and colorful 19,000-square-foot space will offer hands-on, interactive exhibits that aim to bring mathematical concepts to life. Although the museum is aimed at children in grades 4 through 8, it will offer math experiences for all ages—one display features a hyper hyperboloid, a sculpture made of lines of red thread that create the illusion that the visitor is in a curved cage of strings; another, called "Pedal on the Petals," lets visitors ride square-wheeled tricycles on a track consisting of a series of curves shaped like a huge sunflower. "Visitors can see—and physically experience—how math makes the seemingly impossible not only possible, but fun," said Whitney.

## New Problem Offered

Four women on one side of a bridge want to cross, but a maximum of two people can cross at one time and any crossing requires the carrying of the one and only flashlight available, since it is dark. It cannot be thrown. A pair must walk together at the rate of the slower woman's pace. Woman A can cross in 1 minute, Woman B in 2, Woman C in 5, and Woman D in 10. What order of crossings will get all the women across in 17 minutes?