

# Augarithms



Volume 16, Number 3

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October 23, 2002

## Colloquium Series Dates for 2002-2003

Colloquia are usually held on Wednesdays from 3:40 to 4:40 p.m. in Science 108. Note that the November 4th talk is on a Monday! Here is the tentative schedule for 2002-2003:

Wed. Oct.	23	Jay Goldman, University of Minnesota*
<b>Mon.</b> Nov.	4	Ken Kaminsky, Augsburg College
Wed. Nov.	20	Michael Kac, University of Minnesota
Wed. Dec.	4	Loren Larson, Carleton College
Wed. Jan.	29	Milo Schield, Augsburg College
Wed. Feb.	12	David Molnar, St. Olaf College
Wed. Feb.	26	Tracy Bibelnieks, Augsburg College
Wed. Mar.	12	Laura Chihara, Carleton College
Wed. Mar.	26	Nick Coult, Matt Haines, & Ken Kaminsky, Augsburg College
Wed. Apr.	9	Augsburg Students
Wed. Apr.	16	Augsburg Students

## \*This week's talk...

### *Counting: Something Old - Something New*

by Prof. Jay Goldman, University of Minnesota



**Prof. Jay Goldman**

"I will present three counting problems:

- 1) The Shadow Calculus: A "magic" method, introduced in the mid- 1800's, which gave correct answers to many problems, but was only explained by simple linear algebra in the 1960's.
- 2) The Binomial Theorem: A theorem tracing back to at least the 1600's, which received a totally new counting proof in the 1960's, leading to fascinating new results.

- 3) There is a vague statement of two counting problems in Plutarch's 'Moralia' (about 100 AD). Although outstanding mathematicians and historians of mathematics unsuccessfully attempted to make sense of the statements, a "solution" was "accidentally" found by a graduate student in 1997."

*Augarithms* is available on-line at [augsborg.edu/math/augarithms/](http://augsborg.edu/math/augarithms/). Click on the date you want to see.

*Mathcartoons.com* is a website of old and new math and other cartoons by your editor. Visit at [mathcartoons.com](http://mathcartoons.com), and let us know what you think.

## Puzzle & Problem of the week...

**THE PUZZLE:** Correction to last issue's puzzle: Restatement: A positive integer  $n$  is equal to nine times the sum of its digits. Find  $n$ . Is  $n$  unique? Prove it.

**THE PROBLEM:** Professor Fogelfroee was chosen to hand out special awards at his departments party for their 5 most distinguished graduating seniors. He arranged the awards in careful order so that when the students lined up in alphabetical order, he could just hand them out without looking at the names. Unfortunately, while cleaning the professor's office the the night before the party, the custodian got the awards scrambled, without the professor knowing it. What is the probability that at least one of the 5 students got the right award? Can you generalize this to  $n$  students?

Send your solutions to the editor. You can drop them in the Puzzles & Problems box just inside the math suite (Sci. 137), or you can e-mail them to him at [kaminsky@augsborg.edu](mailto:kaminsky@augsborg.edu).

We have solvers. **Lena Zakharova** was a late solver of the rectangle and circle problem. **Hung Nguyen** and **Patrick Martell** solved the 'sum-of-the-digits problem, and **Patrick Martell** gave a solution to the 'sheep-and-goat' problem.

## Augarithms

*The Bi-weekly Newsletter of  
the Department of  
Mathematics at Augsburg College*

2211 Riverside Avenue  
Minneapolis, MN 55454

Editor.....Ken Kaminsky  
e-mail address.....[kaminsky@augsborg.edu](mailto:kaminsky@augsborg.edu)

## Mathematician Biography



**Stefan Bergman** (1895-1977) entered Berlin University in 1921. He was influenced by von Mises at this time and for the rest of his career. He worked on potential theory applied to electrical engineering. Bergman used the theory of integral equations as developed by Schmidt and Hilbert.

Forced from his post in Berlin in 1933 (Bergman was Jewish) he went to Russia until 1937, then to Paris where he wrote an important monograph on complex analysis.

**Stefan Bergman** In 1939 Bergman went to the USA with von Mises as his sponsor. His first post was at Brown University then, in 1945, he joined von Mises in Harvard. However his stay in Harvard was a short one and he then moved to Stanford where he spent the rest of his career. He was most interested in research and seldom taught, in fact this made it difficult for him to get a post since he made it known that he required a no-teaching post.

Bergman is best known for his kernel function which he invented in 1922 while at Berlin University, now known as the Bergman kernel. He is also known for applications of the kernel function to conformal mappings. In fact he spent most of his life developing properties and applications of his kernel function, as well as those of its associated metric.

In 1974 Charles Fefferman found a deep application of Bergman's ideas to biholomorphic mappings and a conference on several complex variables, held in 1975, had Bergman's work as its main theme. Bergman attended the conference, clearly enjoying the central role of his work.

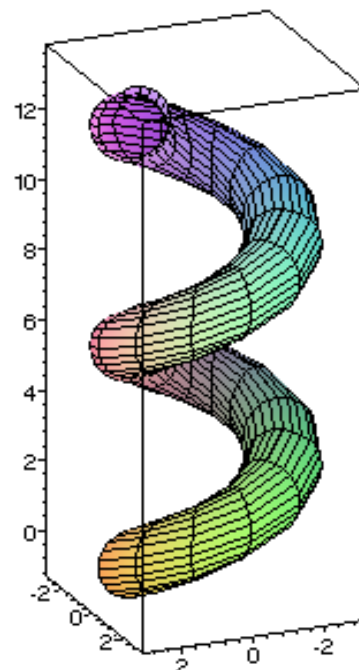
Krantz, writing about Bergman said:-

*Bergman was an extraordinarily kind and gentle man. He went out of his way to help many young people begin their careers, and he made great efforts on behalf of Polish Jews during the Nazi terror. He is remembered fondly by all who knew him.*

Article by: J J O'Connor and E F Robertson

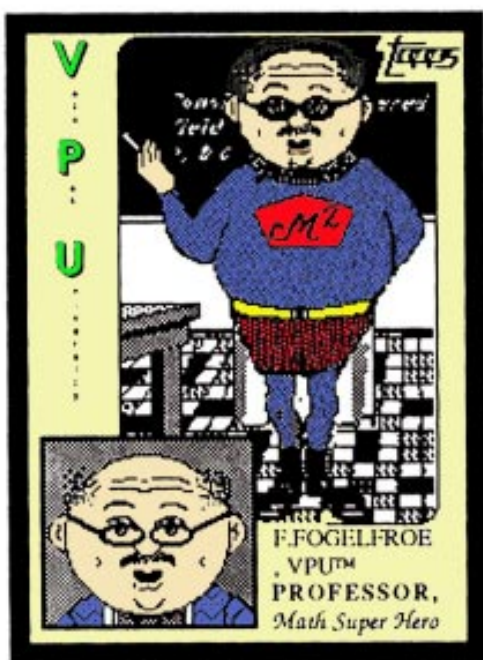
## Pretty Graph of the week...

The graph below is that of the parametric surface with equation  $\mathbf{r}(s, t) = \langle (2 + \sin(t)) \cos(s), (2 + \sin(t)) \sin(s), s + \cos(t) \rangle$ ,  $0 \leq s \leq 4\pi$ ,  $0 \leq t \leq 2\pi$ .




Suggest a pretty graph, and we'll try to print it up.

## Fogelfroe gets a Math Card



**Hey kids!** Here's Professor Fogelfroe's newest Math Card. Come and get it before it becomes a rare collector's item. Only 59¢ at participating College Bookstores. (And don't forget. Friday night is calculator night at the "Dome".)



**FREDDIE FOGELFROE**  
 Born: May 17, 1945      Home: Nalgona, Foxhead, MN  
 Ht: 5'6"      Wgt: 190      Writes: Right-handed

\* 1966 - 1988  
 \* 1989 - 1990  
 \* 1991 - 1992

CAREER TEACHING HIGHLIGHTS						
Year	School Name	Classes Taught	Rank	Tenure	Number of Committees	Number Students
1966	PineChopper U.	8	Instructor	No	0	241
1970	LEND-Hoppe	7	Asst. Prof.	No	3	281
1975	E Mart College	7	Assoc. Prof.	Yes	6	202
1980	Als Discount College	6	Assoc. Prof.	Yes	7	310
1988	ValPak Univ.	7	Professor	Yes	7	260

Connect Status: Teacher in 1975  
 Now recognized: Signed by PineChopper U. in May 1965 annual report

**CAREER HIGHLIGHTS**  
 Met: 1988-1990: 1988-1990: 1988, 1989, 1990      1988-1990: 1988-1990: 1988, 1989, 1990

Kaminsky 1990