

# L'Augarithms



vol. 24.12

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April 19, 2011

## Mathematics Colloquium Spring Lineup

Colloquia are typically held Wednesdays 3:40—4:40 in Oren 113. Highly sought-after refreshments are served.

- |      |      |  |
|------|------|--|
| Jan. | 19   | Infinite Secrets: The Genius of Archimedes           |
| Feb. | 2    | Ken Kaminsky, Augsburg College                       |
|      | 16   | Loren Larson, St. Olaf College                       |
|      | 23   | Nancy Steblay, Augsburg College                      |
| Mar. | 2    | Jiang-Ping Chen, St. Cloud State                     |
|      | 23   | Alicia Johnson, Macalester College                   |
| Apr. | 6    | Doug Dokken, University of St. Thomas                |
|      | → 19 | Talks by Students <sup>1</sup>                       |
|      | → 26 | Special colloquium by Kevin Sanft ('02) <sup>2</sup> |

## <sup>1</sup>This week's colloquium

**Brian Love** is a double major in mathematics and computer science. After graduating this May Summa Cum Laude with departmental honors in both mathematics and computer science, Brian plans to get a job. His talk will describe the results of his undergraduate research project with advisor **Prof. Su Dorée**.

The “zero forcing number” of a graph is the minimum number of vertices that need to be initially “turned off” to force all of the vertices off according to a forcing rule: if an “off” vertex has only one neighbor that is still “on”, that neighbor is forced “off”. Originally of interest because of its connection to the minimum rank of a graph, the zero forcing number has emerged as an interesting graph parameter in its own right.

Following Brian's talk will be a surprise speaker . . . stay tuned!

## <sup>2</sup>Next week's colloquium



**Kevin Sanft**

Kevin Sanft, a 2002 Augsburg graduate who double-majored in mathematics and computer science will visit campus on Tuesday, April 26. He will present a colloquium titled “Stochastic modeling and simulation in biology” and will tell some stories about “real jobs” and grad school. Come meet Kevin on Tuesday, April 26. Visit his website at <http://www.kevinsanft.com>.

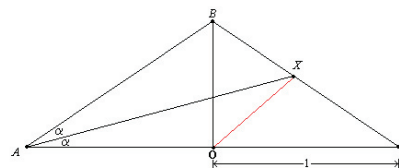
## Mr. Anthony goes to Washington

Mathematics major **Jeremy Anthony** ('11) presented his research “Wavelet analysis of ecosystem carbon uptake data” on April 13, 2011 on Capitol Hill for the annual Posters on the Hill event organized by the Council on Undergraduate Research. Less than 15% of the undergraduate students from around the nation who applied were selected to present at Posters on the Hill. While in Washington, D.C., Jeremy met with **Sen. Klobuchar** (MN), **Sen. Franken** (MN), **Rep. Ellison** (MN), and members of **Sen. Milulski's** (MD) staff. Jeremy's work is directed by his research advisor, **John Zobitz**, who accompanied Jeremy to DC.

## Problem of the week...

There were no solvers of the POTW from vol. 24.11. The correct answer was  $C(n, 4) + C(n - 1, 2)$ .

Here is the last POTW of the term: In the figure, the triangle  $ABC$  is isosceles with  $|AB| = |BC|$ . Suppose that  $AX$  bisects the angle  $BAC$  with  $X$  the point of intersection of the angle bisector and the side  $BC$ . Fix  $|OC| = 1$ . Imagine the vertex  $B$  sliding toward the side  $AC$  of the triangle along the perpendicular bisector  $BO$ . What is



$$\lim_{B \rightarrow O} |OX|?$$

❖ Reprinted with permission from Bradley U's old 'POTW' page <http://hilltop.bradley.edu/%7Edelgado/potw/potw.html>

## Puzzle of the week...

There were no solvers of the POTW from vol. 24.11. Yes, it is possible to hold on to both ends of a single length of unknotted rope and tie a knot in the rope without letting go of either end? Just start with your arm folded. Don't believe it? Do it in reverse. Now the last PZOTW until the fall:

When dividing 512 by its last digit, 2, there is no remainder. When dividing 819 by its last digit, 9, the result again leaves no remainder. Numbers like 512 and 819 are called *numbers with an exact ending*. Disregarding the trivial solution,  $\{1, 2, \dots, 9\}$ , find the lowest *nine consecutive* numbers with exact endings.

❖ Submit POTW & POZTW solutions to [kaminsky@augsborg.edu](mailto:kaminsky@augsborg.edu), or under Ken's door at SCI 137E, or in the puzzles and problems box just outside of Su's office.

*L'Augarithms*  
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of the  
Department of Mathematics  
at Augsburg College  
Editor.....Kenneth Kaminsky  
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## Best School Humor

How to fail a test with dignity: *Steve is driving his car. He is travelling at 60 fps and the speed limit is 40 mph. Is Steve speeding?*

*He could find out by checking his speedometer.*

## The Caption Contest

The decision of the CCJC (Caption Contest Judging Committee) has finally been made official. The co-winners of the 100 feet of genuine yellow and black crime-scene tape are **Austin Wagner** and **Brian Love**. Austin and Brian will share the prize equally (see photo).

The winning captions:

Austin Wagner: *"Despite Zeno's best efforts to defy police orders, he found that, although he could approach the police*



*The scene of the crime, a Professor's office the morning of February 14, 2011*

## Best Church Bulletin Humor

The items printed in this space are purported to be genuine church announcements or church bulletin items.

*Irving Benson and Jessie Carter were married on October 24 in the church. So ends a friendship that began in their school days.*

*tape, he was unable to ever actually cross the line..."*

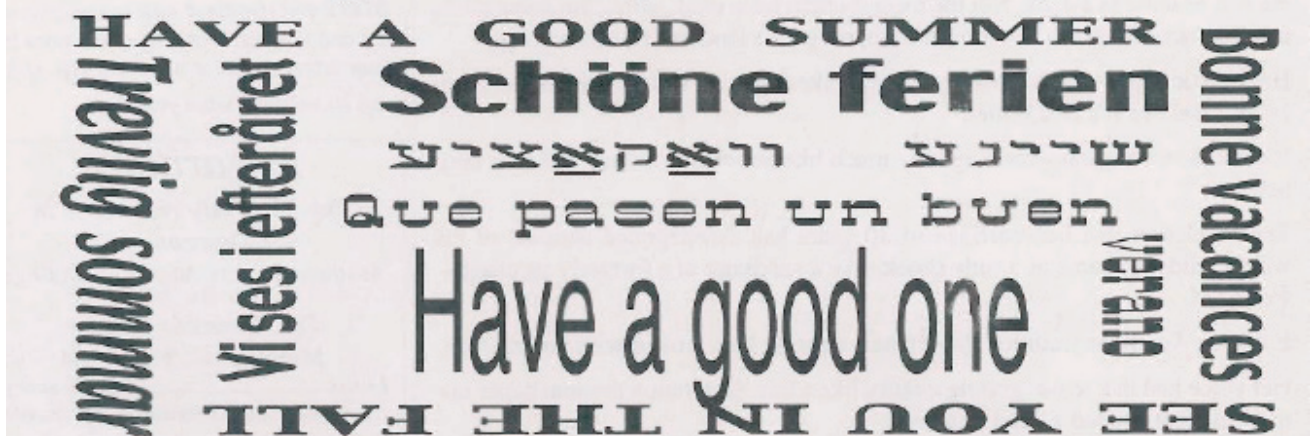
Brian Love: *"Early Monday morning the body of Andrew Divo was discovered in the office of Professor Bělik. He is presumed to have died from a heart attack, which may have been the result of his history of attempting to prove theorems by example."*

The CCJC bestowed honorable mention upon the captions submitted by **Tami Sneath**, **Toni Ek**, **Mozjin B. Hotz**, and **José Dyn-Rosén**.



*Brian and Austin share grand the prize of 100 feet of genuine yellow and black crime-scene tape.*

OK, it's really a little early to be wishing you a good summer, but this is the last Augarithms of the year, so have a good pre-summer...



Never fry bacon in the nude.