

The Almagest

The bi-weekly newsletter of the Department of Mathematics and Computer Science. Your trusted source for news.

Volume 3, No. 11

March 28, 2011

Alma College
Alma, MI 48801

Senior Presentations

Don't miss the remaining group of senior presentations! The presentations are given every **Tuesday** and **Thursday** at **4:00** in SAC 216. Please make an effort to attend the talks and support your classmates. Come for refreshments at 3:50.

Tuesday, March 29th

Zach Cresswell:

The Bernoulli-Euler Problem of the Misaddressed Letters

Jamie Young:

Rijndael: A brief look at the Mathematics of The Advanced Encryption System

Thursday, March 31st

Chris Przybylski:

Ant Colony Optimization and its Applications to the Traveling Salesman Problem

Tuesday, April 5th

Ian Kurth: *Heron's Formula*

Heath Laugal: *The Monte Hall Problem*

Thursday, April 7th HONORS DAY

Tuesday, April 12th

Dan Krauss: *Advanced Computer Graphics (senior thesis)*

Thursday, April 14th

Bobby Fryling: *GIF Image Compression*

Cognates for the Math Major

In addition to the 36 credits of mathematics every major must take, there are two required cognates: CSC 120 and a course, other than a mathematics course, approved by the Department, with a mathematics prerequisite numbered 113 or higher. Many students take PHY 121, which is a great course. **BUT, IT IS NOT THE ONLY COURSE.** Below are some of the choices available to you with their math prerequisites given in parentheses.

* PHY 121 Physics I (MTH 113 or 121)

* ECN 317 Econometrics (MTH 116)

* CSC 335 Computer Graphics (MTH 220)

CHM 331 Physical Chemistry (MTH 122)

PHL 303 Symbolic Logic (MTH 120)

* Offered in Fall 2011

Math 210 Meets FOUR Days a Week

When you register for Math 210 this week, be sure to notice that the course meets **FOUR DAYS** each week. It meets from 9:30 to 10:20 on Monday, Wednesday, and Friday; on TUESDAY the class meets from **8:30 to 9:20**.

Seniors: Let Us Know of Your Plans

We would like to know what you plan to be doing after you graduate. Have you found a job? Are you looking for a job? Do you plan on attending graduate school? Whatever you're doing, we'd like to know so that we can mention it in the last issue of the *Almagest*. So, when you have a minute, please send an e-mail to Professor Sipka or just stop by his office. Thanks.

Discoveries & Breakthroughs in Math

The Mathematical Association of America has created a new math news website that went live March 7. This website is an extension of Discoveries and Breakthroughs Inside Science (DBIS), a program that broadcasts some of the latest scientific news and technological breakthroughs. The similarly titled Discoveries and Breakthroughs Inside Math website features day-to-day coverage of all things math related. Each article displays a two-minute video clip related to the story. These clips also air alongside DBIS segments on local broadcasting stations across the U.S. and in many places abroad. I've already checked out what the website has to offer, and I found 5 articles the first day. One of the articles describes the math behind mapping out the most efficient school bus routes to save taxpayers' money. If that news story is any indication of what's to come from this website, I highly advise you to check it out at:

<http://www.aip.org/dbis/math/> Stephen Sorensen

Math Miscellany

If I had but one hour to live, I'd spend it in a statistics class . . . for the hour would seem to last much longer.

Solution to Previous Problem

In a school with 100 students, each student sends a text message to 50 other students. **Prove** that there is at least one pair of students who send a message to each other.

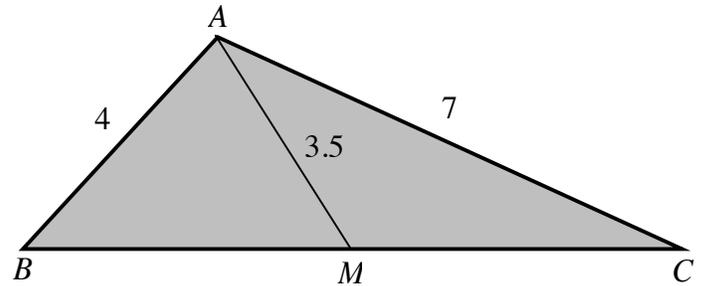
There are $\binom{100}{2} = 4950$ different pairs of students;

so, if only one text message is sent between each pair, there could be at most 4950 different messages. But, $100 \cdot 50 = 5000$ text messages are sent. Thus, there must be pairs (at least 50 pairs) who sent messages to each other.

Alex Hegedus was first to submit a solution and received the prize for the problem.

Problem of the Bi-Week

The sides AB and AC of triangle ABC have lengths of 4 inches and 7 inches, respectively. The median AM is 3.5 inches. What is the *exact* length of side BC ?



A small prize will be awarded to the FIRST student who provides a correct solution. See Prof. Sipka.

Student assistants:	Matt Mansell = M^2
	Stephen Sorensen = S^2
Distribution:	Deb Smith
Faculty advisor:	Tim Sipka

If you would like to submit an announcement or a short article, please send it via e-mail to Stephen Sorensen or Tim Sipka.