

# The Almagest

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

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March 12, 2012

Alma College  
Alma, MI 48801

## Senior Presentations

The senior presentations begin this week with talks every **Tuesday** and **Thursday** at **4:00** in SAC 109. Please make an effort to attend the talks and support your classmates. Come for refreshments at 3:50.

### Tuesday, March 13<sup>th</sup>

**Garrett Rodriguez:** *The Area of a Circle*

**Amy Baranowski:** *Euclid's Proposition VI.31*

### Thursday, March 15<sup>th</sup>

**Ryan Lennox:** *Math in the Graphics Pipeline*

**Bryan Scheiber:** *WEP Wireless Encryption*

### Tuesday, March 20<sup>th</sup>

**Kristian Taylor:** *Nash Equilibrium*

**Adam Jutila:** *The Monty Hall Problem*

**Matt Stephens:** *The Five Platonic Solids*

### Thursday, March 22<sup>nd</sup>

**Jordan Newhouse:** *L'Hôpital's Rule*

**Chad Stripling:** *Mathematics in Material Science*

**Madison Behmlander:** *The Friendship Theorem*

## Seniors Give Talks at MSU

Seniors **Ian Rhynard** and **Chad Stripling** will be giving talks at the 9<sup>th</sup> Annual Student Mathematics Conference at M.S.U. on Saturday, March 17<sup>th</sup>. The titles of their talks are:

Ian: *Old Meets New: A Generalization of The Knight's Tour Puzzle*

Chad: *Synchrotron Data Comparison and Reduction on Copper Samples*

## REMEMBER PI DAY

Wednesday, March 14<sup>th</sup>, may just seem like another day to you, but to mathematicians, it is a day that is infinitely more important than the love holiday we celebrated in February. That's right; this Wednesday is Pi-Day! Celebrated on March 14<sup>th</sup> at 1:59 (3.14159), Pi-Day is a day where all people can acknowledge the greatness of Archimedes' Constant.

$\pi$  is an irrational number, meaning that it cannot be expressed as a fraction, so its decimal representation will never end nor will it repeat. Way back in 1650 B.C., a man named Ahmes was one of the first people to ever record the numerical value of  $\pi$  on what is now known as the Rhind Papyrus. He was off by less than 1% of the modern approximation. Ahmes calculated his approximation by "squaring the circle," which is to measure the diameter of a circle by building a square inside the circle. Since then, we have become fascinated in computing its digits and observing its properties.

In 2002, a Japanese scientist used a super computer, the Hitachi SR 8000, to compute 1.24 trillion digits of  $\pi$ ! Seven years earlier in Japan, Hiroyuki Gotu memorized 42,195 places of pi and is considered the current pi champion (yes they have competitions). At the 763<sup>rd</sup> decimal, there are six nines in a row, known as the Feynman Point, but still no repetition or sequence. Pi-Day is also the birthday of musical genius Quincy Jones and Nobel Prize Winner Albert Einstein. *Jon Young*

## Visit the Math Help Center

**For MTH 113, 121, & 122:**

Monday through Thursday: 7-10 pm in SAC 216

**For MTH 116:** Thursday: 7-10 pm in SAC 213

## Fall Term Registration

Registration for fall 2012 begins next week, and we thought you'd like to know what upper-level courses will be offered in mathematics and computer science.

MTH 210 *Multivariable Calculus* (Dr. Putz)  
MTH 220 *Math Foundations of C.S.* (Dr. Molina)  
MTH 221 *Intro. to Cryptography* (Dr. Molina)  
MTH 310 *Linear Algebra* (Dr. Nyman)  
MTH 341 *Probability & Statistics I* (Dr. Dai)  
CSC 230 *Software Engineering* (Dr. McNally)  
CSC 430 *Theory of Computing* (Dr. Thall)

## Problem Solvers

If you enjoy a good struggle with an interesting and non-routine math problem, then consider signing up for MTH 180, appropriately named *Problem Solving*, for fall 2012. This is a one-credit, 7-week course that introduces you to a variety of problem solving techniques and prepares you to compete in the MATH Challenge, a team-oriented competition that occurs in November. If you have any questions, see Prof. Sipka.

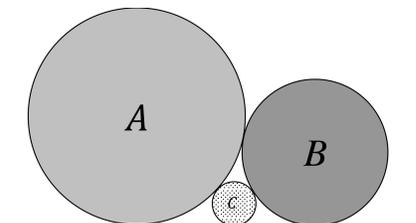
## Solution to Previous Problem

Color the  $xy$ -plane using 2 colors, say red and blue. *Prove* that no matter how the coloring was done, there must be two points, exactly 1 foot apart, which are the same color.

Here's a somewhat condensed version of the solution submitted by **Dr. Andrew Thall**: Draw an equilateral triangle with sides of length 1 foot. At least two of the triangle's three vertices must be colored the same color. So there you have it—two points exactly 1 foot apart having the same color.

## \$4 Prize for Solution to Circle Problem

Let's try again! Express  $c$ , the radius of the smallest circle, in terms of the radii  $a$  and  $b$ .



## Problem of the Bi-Week

In the following “proof,” we show that  $a = b$  implies  $2 = 1$ . *Identify the flaw.*

$$\begin{aligned}a &= b \\a^2 &= ab \\a^2 + a^2 &= a^2 + ab \\2a^2 &= a^2 + ab \\2a^2 - 2ab &= a^2 + ab - 2ab \\2a^2 - 2ab &= a^2 - ab \\2(a^2 - ab) &= 1(a^2 - ab) \\2 &= 1\end{aligned}$$

A prize of **\$2.00** will be awarded to the **FIRST** student who submits a correct proof to Prof. Sipka.

Student assistant:	Jonathan Young
Faculty advisor:	Tim Sipka
Distribution:	Deb Smith

If you would like to submit an announcement or a short article, please send it via e-mail to Tim Sipka ([sipka@alma.edu](mailto:sipka@alma.edu)).