

# The Almagest

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

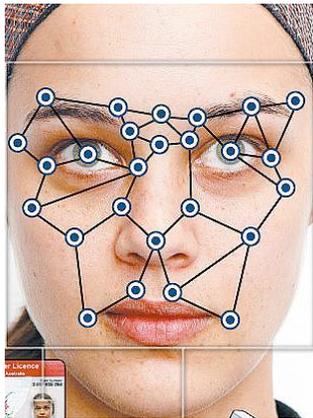
Volume 7, No. 8

January 26, 2015

Alma College  
Alma, MI 48801

## Math & C.S. Colloquium - January 28<sup>th</sup>

Please make time in your busy schedule to attend the first colloquium of the winter term. Our speaker, **Ms. Lacey Best-Rowden**, is an Alma College alumna who is currently pursuing a Ph.D. in computer science at Michigan State University. She will provide us with an overview of the progress made in the area of automatic face recognition systems and highlight some of the current challenges, particularly with respect to law enforcement and intelligence applications. *Don't miss it!*



### *Automatic Face Recognition: Applications and Challenges*

Presenter: **Lacey Best-Rowden**  
Date: **Wednesday, January 28<sup>th</sup>**  
Time: **4:00**  
Place: **SAC 113**

*Refreshments at 3:50.*

## Important Dates for Seniors

Attention all seniors! Please be aware of the following dates.

**February 10:** MFAT test – 1<sup>st</sup> opportunity.

**February 11:** MFAT test – 2<sup>nd</sup> opportunity.

**March 6:** Your paper is due.

**March 17:** Presentations begin @ 4:00

**March 17:** Senior dinner @ 5:30



## Need an Upper-level Math Course?

Do you need an upper-level math course? Then consider taking MTH 280 during *Spring* term. **Dr. Jimmy Peterson** will be teaching this new upper-level math course in *Game Theory*. This course involves the mathematical study of interactions involving several players (usually two), each attempting to gain the most they can by making a choice from among several options. Although the set-up just described sounds straightforward, even very basic games (interactions) can result in surprising “best” strategies for the players. We’ll study just what we mean by “best” strategies and how to go about mathematically finding them. There are many applications to economics, political science, biology, and other fields, which we’ll explore. The prerequisite is MTH 121 or instructor permission.

## Math Competition on March 28<sup>th</sup>

The *Lower Michigan Math Competition* will be held on Saturday, March 28<sup>th</sup>, at S.V.S.U. This is a team-oriented competition similar to the MATH Challenge, a competition that we sponsor in the fall term. If you’re interested in participating, please see Prof. Sipka.

## The Math Club

The Math Club meets on **Tuesday evenings** at 9pm in DOW 132. All lovers of mathematics are encouraged to attend. And even if you simply *like* math, your presence is valued.

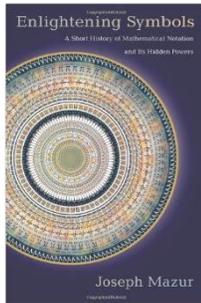


## The Language of Math

Mathematics certainly possesses a language rich in notation. From our first introduction to basic arithmetic, where our papers are sprinkled with pluses, minuses, and equal signs, to higher level mathematics littered with symbols and variables inscrutable to the untrained eye, the notion of representing mathematical concepts symbolically is as natural to us as representing the words we speak with letters on a page. This seemingly instinctual method of representation, however, was not always the standard.

As any student of mathematics who has had the opportunity to peruse the writings of mathematicians such as Euclid can attest, our familiar algebraic representations would likely have been as incomprehensible to the ancient Greeks as their writings often appear to modern math students. But when and, more interestingly, how did “In right-angled triangles the square on the side opposite the right angle equals the sum of the squares on the sides corresponding to the right angle” come to be known by the familiar mantra of high school geometry students as “ $a^2 + b^2 = c^2$ ?”

**Joseph Mazur**, Professor Emeritus of mathematics at Marlboro College explores this rich aspect of mathematical history in his book *Enlightening Symbols: A Short History of Mathematical Notation and Its Hidden Powers*. Following the development of mathematical notation from its infancy, Mazur examines the birth of notations neigh inseparable from the notion of mathematics in modern perception such as the simple yet vital equal sign as well as the influence their use had on thinking about concepts in mathematics. More on Mazur’s book can be found at <http://amzn.to/1L4XsIo>. *Katie Krauss*



## Solution to Previous Puzzle

If  $a$  and  $b$  are integers, how many matrices of the form  $\begin{bmatrix} 2 & a \\ b & 5 \end{bmatrix}$  are NOT invertible?

**Austin Bryan** solved the problem. The matrix is NOT invertible if  $10 - ab = 0$ . This happens when  $(a,b)$  is one of the following 8 pairs:  $(1,10)$ ,

$(10,1)$ ,  $(2,5)$ ,  $(5,2)$ ,  $(-10,-1)$ ,  $(-1,-10)$ ,  $(-2,-5)$ , &  $(-5,-2)$ .

## Puzzle of the Bi-week

Here’s another example of a problem that you might see on the MFAT in mathematics.

The set  $\{1,2,4,7,8,11,13,14\}$  forms a group under the operation of **multiplication modulo 15**.

Which of the following is the cyclic subgroup generated by  $\{7\}$ ?

- (A)  $\{1,7\}$
- (B)  $\{1,2,7,14\}$
- (C)  $\{1,4,7,13\}$
- (D)  $\{1,7,8,13,14\}$
- (E)  $\{4,7,11,14\}$

A prize of **\$1.00** will be awarded to the **FIRST** student who submits a correct solution to Prof. Sipka.

Student assistant:	Katie Krauss
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)).