

The Almagest

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

Volume 6, No. 11

March 17, 2014

Alma College
Alma, MI 48801

Senior Presentations

Senior presentations continue over the next two weeks with talks on **Tuesday** and **Thursday** at **4:00** in SAC 113. Please make an effort to attend the talks and support your classmates.

Tuesday, March 18th

Erica Kamm: *The Chinese Remainder Theorem*

Lauren Steinhurst: *The Friendship Theorem*

Thursday, March 20th

Danae Sietsema: *Cardano's Solution of a Cubic*

Amanda Shaffner: *Fermat's Last Theorem*

Adrien Allward: *The Euclidean Algorithm*

Tuesday, March 25th

Jesse Monarch: *Wearable Embedded Computers*

Emily Noble: *The Monty Hall Problem*

Thursday, March 27^h

Ben Brow: *Polya's Enumeration Theorem*

Jon Bricker: *The Brachistochrone Problem*

Senior Dinner on Tuesday, March 18

Our annual dinner for senior mathematics and computer science majors will be held on **Tuesday, March 18th** at 5:30 in the Heather Room. Our dinner has always been a fun event with lots of good food, laughter, and reminiscing. So, please make sure you attend. If you've not yet responded to the invitation sent to you, please contact Deb Smith ASAP.



Happy Belated Pi Day!

Pi: a beloved irrational, transcendental number. A key element of trigonometry, a familiar aspect of geometry, and a familiar sight of high school math classrooms, we celebrate this never-ending mathematical constant every year on March 14th. Since physicist Larry Shaw first celebrated this mathematically auspicious day with the consumption of fruit pies at the San Francisco Exploratorium in 1988, the tradition has become increasingly popular, even leading to its official recognition by the U.S. House of Representatives in 2009.

As we note the passing of one Pi Day and look forward to an even more significant Pi Day next year (03/14/15), the following tidbits and factoids relating to Pi are provided for your enjoyment.

1. Albert Einstein was born on Pi Day in 1879, though it would not be known as such for 109 years.
2. Pi has been calculated to 10 trillion digits.
3. In *Breakfast of Champions*, Kurt Vonnegut refers to pi as looking "like the end of a table in a prison dining hall" (page 137).
4. Some mathematicians (namely Michael Hartl, former theoretical physics professor at Harvard and Caltech) advocate replacing pi with tau (equal to 2π).
5. An estimate for pi is even found in the Bible: check 1 Kings 7:23.
6. Pi has its own song. Steven Rochen composed a piece for the violin based on converting the first 221 digits of pi to musical notes. You can listen to his composition at bit.ly/1oRTepH or find it on YouTube under the title Pi Day Song: A Piece of Pi (violin music for Pi Day).

More pi fun can be found at www.joyofpi.com. *Breakfast of Champions* can be read at the following link: bit.ly/1dXaN5P. *Katie Krauss*

Billion Dollar Bracket Challenge

Warren Buffet, one of the richest people in the world, has teamed up with Quicken Loans and is offering one billion dollars to anyone who submits a perfect NCAA basketball bracket online with Yahoo Sports. So, what are your chances of winning? **Jeremy Weber** figured this out for us: there are 64 teams and 63 games in the tournament, which means there are 2^{63} possible outcomes for a bracket. That means the probability of winning is:



$$\frac{1}{2^{63}} = \frac{1}{9,223,372,036,854,775,808} \approx 1.084 \times 10^{-19}.$$

News from the Math Club

The next meeting of the Math Club will be:

Tuesday, March 18th at 9 pm in Dow 132.

Everyone is welcome.

President: **Jacob Blazejewski**

Vice President: **Krystle Reiss**

Treasurer: **Hannah Austin**

Secretary: **Christine Wiersma**

Student Congress Rep: **Shelly Scribner**

Solution to the Previous Problem

The wind turbines we see along route 127 have a rotor diameter of 117 meters (384 feet): that's the diameter of the circular swath made by the rotating blades. The blades rotate at 14 rpm. So, my question for you is:

How fast is the TIP of the blade traveling?

Jake Brower was the winner of the \$2 prize, and here's his solution.

Given that diameter = 384 ft and rate = 14 rpm, we can say that the tip is traveling:

$$384\pi \cdot 14 = 5376\pi \text{ ft/min}$$

$$5376\pi \cdot 60 = 32256\pi \text{ ft/hr}$$

$$32256\pi / 5280 = 61.091\pi \text{ mph}$$

$$= 191.92 \text{ mph}$$

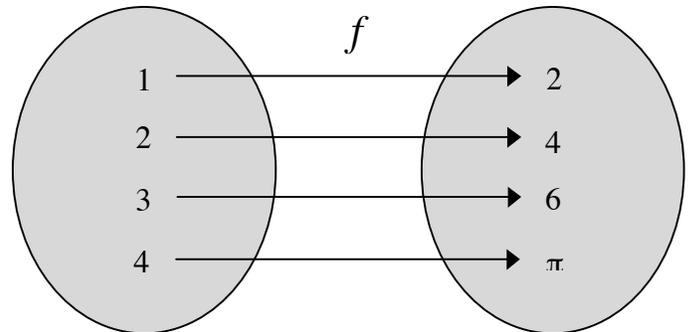
Puzzle of the Bi-week

What value comes next in the sequence
2, 4, 6, ___ ?

The answer is: *any number you want.*

Because March 14 was π day, I'd like you to **find a single formula** for the sequence 2, 4, 6, π . That is, find a function f such that

$$f(1) = 2, f(2) = 4, f(3) = 6, \text{ and } f(4) = \pi.$$



A prize of **\$2.00** 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).