

# Math News

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## Local Student Wins Honors

Senior Bradley Yoder has been tapped to receive convocation honors from the Department of Mathematics in 2007. Hailing from nearby Hyndman, PA, Brad was home-schooled for grades K – 12, using the curriculum of the Christian Liberty Academy. His high SAT score earned him an out-of-state scholarship to FSU, where he enrolled to study mathematics. Since arriving on campus, he has added a second major in Physics and a minor in Chemistry. Under this industrious plan Brad will graduate this Spring with a total of 151 earned credit hours.

After graduation, FSU's Master of Arts in Teaching program awaits, and Brad hopes one day to teach high school mathematics or science. Brad enjoys mathematics for the creativity it allows. He feels that "mathematics is very structured and solid in that there is (almost) always an answer, making hypotheses and answers to problems either right or wrong, never both."

In addition to his coursework, Brad is involved with Kappa Mu Epsilon (as treasurer), Sigma Pi Sigma, the varsity tennis team, activities at his church, and his bird-watching hobby. He has also worked in construction and spent a month in Mongolia.

Congratulations to Brad.

## May Graduates

The following mathematics and actuarial science majors will graduate at the end of this term:

Matt Amiot, Mathematics  
Eric Guignet, Actuarial Science  
Megan Morris, Mathematics  
John Sine, Mathematics  
Brad Yoder, Mathematics

Math News congratulates these students and wishes them well in their future careers/advanced studies.

## A Thought to Ponder

The work of science is to substitute facts for appearances and demonstrations for impressions.

– John Ruskin

## A Summer Puzzle

Every calendar year has at least one Friday the 13<sup>th</sup> (F-13). What is the maximum number of F-13s that can occur in one calendar year?

### How Much Did the Llama Graze?

Last month's puzzle: A llama is tethered to the corner of a barn that measures  $m$  feet by  $n$  feet,  $m < n$ . The area available for grazing depends on the length of the tether, and there are three different lengths that may be used. There are no fences or other obstructions except for the barn itself. When a tether of length  $m$  is used, the llama can reach  $M$  square feet of grazing area; with a tether of length  $n$ , the llama nibbles on an area of  $N$  square feet; and with a tether of length  $m + n$ , the llama enjoys access to  $T$  square feet. If  $T = M + N + 5,500$ , what is the area of the barn floor?

The solution: The barn floor is approximately 875 square feet. With the shortest tether,  $m$ , grazing of  $M$  is equal to  $.75p m^2$  (a circle less the quadrant blocked by the barn). With the longer tether,  $n$ , grazing of  $N$  equals  $.75p n^2 + .25p(n - m)^2$  (the second term represents the grazing area around a corner of the barn). With a tether of length  $m + n$ , the llama can nibble an area of  $T$ , which equals  $.75p(m + n)^2 + .25p n^2 + .25p m^2$  (since the llama can graze around two corners of the barn). By expanding the expression for the largest area,  $T$ , and subtracting the expressions for  $M$  and  $N$ , the result is  $2p m n$ . Given that this equals 5,500 square feet, the barn area,  $m n$ , is approximately 875 square feet. Obviously, raising llamas is as easy as  $p$ .

## KME News

Kappa Mu Epsilon held elections recently. Next year's officers are: Shay Mallory, President; Matthew Bucchino, Vice President; Courtney Kamauf, Treasurer; and Nicole Garber, Secretary.

KME is sponsoring an end-of-semester picnic for mathematics majors and minors on Wednesday, May 16. The picnic will be held from noon to 2 p.m. in the pavilion in Lion's Park on the west end of Frostburg. Anyone needing directions or a ride should contact Dr. Hughes (DH 224, 301-687-4180).

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