

The Math News

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Tennille are all working on projects which will let them graduate

Mathematics majors can take **SM362, Modern Algebra** with honors in mathematics, and **SM462, Algebraic Structures**, which address the basic ideas behind modern encryption techniques.

In recent semesters, many mathematics majors have taken courses entitled **Applied Algebra** and **Cryptanalysis**, offered on an occasional basis, which deal directly with the mathematics of public key encryption.

Recent and coming events:

Math Club viewing of the movie **Pi**, January 24.

Math **Jeopardy!** contest, February 12.

Math Club **careers night** coming in February.

Midn. 1/c **Benjamin Heineike** is completing his **Mathematics Trident Project** on *Reaction Diffusion Equations and Morphogenesis Using Galerkin Methods* this semester. Midshipmen **Philip Ely, Richard Linnell, Cole Muller, Andrew Privette, Eric Rittermann,** and **Tyler**

Mathematical quotation:

[M]athematics can be extended to any branch of knowledge, including economics, provided the concepts are so clearly defined as to permit accurate symbolic representation. That is only another way of saying that in some branches of discourse it is desirable to know what you are talking about. J. R. Newman, in *The World of Mathematics*, New York: Simon and Schuster, 1956.

Quick problem: A small circle lies inside a circle of radius 1, tangent to that circle and also tangent to (but outside) an equilateral triangle whose vertices are on the large circle. What's the radius of the small circle?

Last issue's problem:

Suppose ping pong balls numbered one to one million are in a (large) barrel. If you randomly pick out three balls, what's the probability that the number on the third ball is between the numbers on the first two? If the numbers on the 3 balls are a , b , and c , with $a < b < c$, then you

could have picked them in 6 different but equally likely orders: abc, acb, bac, bca, cab, or cba. Since 2 of these have the middle number third, the probability is $2/6$, or $1/3$.

Visit the Mathematics Department web site at
<http://www.usna.edu/MathDept/website/index.htm>