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# A f t e r m a t h

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## Warnock Chair

Alumni John E. and Marva M. Warnock have created a Presidential Endowed Chair for Faculty Development in Mathematics at the University of Utah through a generous gift of \$1.5 million in Adobe Systems stock. It is by far the largest gift the Department has received to support its research mission. The Warnocks' foresight and generosity will give the Department the means to attract young faculty of outstanding quality to the University for generations to come by providing, for a term of up to six years, funds to support the research of each person holding the Chair. It is a huge step forward and will make an enormous contribution to mathematics at the University of Utah. The Department expresses its profound thanks to John and Marva Warnock.



John and Marva attended Olympus and Highland high schools, respectively, then came to the University of Utah for their higher education. John received a Bachelors degree in Mathematics and Philosophy, and Marva received a Bachelors degree in sociology. Marva Warnock is now a designer and partner with Marsh Design, a graphics design firm in Palo Alto, California.

John Warnock received a Masters degree from the Mathematics Department, then housed in the old Cowles building. His 1964 thesis, "*The Radical of the Row Finite Matrices of an Arbitrary Ring*," was published in the Transactions of the American Mathematical Society. Subsequently he pursued work in computer science, also at the University of Utah. His 1969 Ph.D. dissertation was titled "*A Hidden Surface Algorithm for Computer Generated Half-Tone Pictures*."

John Warnock is the holder of six patents and is the recipient of numerous awards, including the

Association for Computing Machinery (ACM) award, and the first Rhode Island School of Design Distinguished Service to Art and Design international award. Dr. Warnock is a leader in the conception and design of computer software and of the technical and mathematical innovations which make this software possible. Before co-founding Adobe Systems with Chuck Geschke in 1982, he was principal scientist at Xerox Palo Alto Research Center (PARC) where he developed the Postscript language, now the *lingua franca* for both text and graphics documents. Postscript, and the software programs Photoshop, Illustrator, and Acrobat all bear the prefix "Adobe" and are key parts of the revolution which has made computing an innovative force in publishing and graphics design. Without these innovations, our department and our profession would function quite differently — no way to get a good printout from TeX, no high quality figures in our papers, no exchange of pre-prints as PDF files, etc.

Once again, we thank the Warnocks for their generosity, and we look forward to the appointment of the first holder of the John E. and Marva M. Warnock Presidential Endowed Chair for Faculty Development.

## Putnam Competition

On Saturday, December 2, the 61st William Lowell Putnam Mathematical Competition was held. This is a nationwide test open to all undergraduates and is famous for hard problems. Here is an example from this year's exam:

Let  $B$  be a set of more than  $2^{n+1}/n$  distinct points with coordinates of the form  $(\pm 1, \pm 1, \dots, \pm 1)$  in  $n$ -dimensional space, with  $n \geq 3$ . Show that there are three distinct points in  $B$  which are the vertices of an equilateral triangle.

Five students from the University of Utah took part in this year's Putnam exam: Aaron Cohen, David Lindsay, Jared Olson, Robert Thorn, and Paul Watkins.

## WeBWorK

A new program, WeBWorK, has been used on an experimental basis in two sections of Mathematics 1210 (Calculus I). WeBWorK, a program developed at the University of Rochester, was first used here last summer. WeBWorK is used for giving weekly assignments over the Internet. A typical problem is the following:

Some parameters (such as the coefficients in the

$$\text{Let } f(x) = -3x^4\sqrt{x} + \frac{6}{x^2\sqrt{x}}.$$

$$f'(x) = \underline{\hspace{10em}}$$

problem above) are varied randomly so each student has a different problem. Students log on from any computer that has internet access; typically, they print out the problems for that week before trying to solve them. When they have worked out one or more solutions, they log on and enter their answers. The answer may be an expression or a number. After submitting their answer, the program tells the student whether or not it is correct. If the answer is wrong, the student may try again as many times as he or she wishes, the only limit being time (after a certain period, usually a week, no further attempts at solution are accepted). The advantage of WeBWorK is immediate feedback to the student. The instructors using WeBWorK this semester (both teaching Calculus II) are Fletcher Gross and Hugo Rossi. To see what WeBWorK looks like to the student, use any web browser to go to

<http://webwork.math.utah.edu:8080/fall2000math1210-1/>

Use practice1, practice2, practice3, or practice4 for both the login name and password.

## Just For Fun

John Napier (1550-1617), an engineer, physicist and the mathematician considered to be the inventor of logarithms, was also regarded by his contemporaries as a dealer in black magic. One day he announced that his coal black rooster would identify which of his servants was stealing from him. The servants were sent one by one into a darkened room with instructions to pat the rooster on the back. Unknown to the servants, Napier had coated the bird's back with lampblack, and the guilty servant, fearing to touch the rooster, returned with clean hands.

## Who Wants to be a Math-ionaire?

On Thursday, November 30, several brave undergraduates won fabulous prizes in a game show similar to Who Wants to be a Millionaire. A huge "thank you" goes out to Hugo Rossi, who made a wonderful Regis Philbin, and the officers of Pi Mu Epsilon (Haley Petersen, Mindy Scott, Maria Bell and Mike Nicholas) who worked hard to make this event a roaring success.



Contestants look on as one of them tries to win it all!

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Recall that the Department Newsletter now appears monthly, with an extensive annual edition appearing each Spring. Issues of the newsletter are archived on the web at [www.math.utah.edu/newsletter](http://www.math.utah.edu/newsletter).

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