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Perfect and Abundant Numbers - a Perfect and Abundant Source for Undergraduate Research Projects (Abstract)

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The Department of Mathematics at the University of Dayton presents

Undergraduate Mathematics Day

Saturday, November 5, 2011

Perfect and Abundant Numbers - a Perfect and Abundant Source for Undergraduate Research Projects

Dr. Judy Holdener

Kenyon College



Abstract: In June of 2009, the 47th perfect number was discovered by the Great Internet Mersenne Prime Search (GIMPS), a collaborative computing project involving volunteers from all over the world. Like all known perfect numbers before it, this number is even. Does an odd perfect number exist? Are there infinitely many perfect numbers? After more than 2000 years of study, the answers to these questions remain unknown. In my talk, I will introduce perfect numbers along with the closely related “abundant numbers”. After presenting some relevant background information, I will reveal some of the abundant mystery surrounding these perfectly intriguing figures and report on some of the results discovered in recent years by undergraduates at Kenyon College. In doing so, I hope to illustrate that number theory is fertile ground for students itchin’ to get involved in answering open questions in mathematics.

About the speaker: Dr. Holdener joined Kenyon's Mathematics Department in 1997, after spending three years at the U.S. Air Force Academy in Colorado Springs, CO. Although her primary research interests are in the areas of algebra and number theory, she has been known to work in other areas when an interesting question arises... especially if the question is accessible to undergraduates. Judy has collaborated with students on research projects relating to algebra, number theory, dynamical systems, and mathematical biology; their work has culminated in research publications and presentations at national math conferences. In 2008, Judy was awarded the Mathematical Association of America Ohio Section Distinguished Teaching Award and in 2003, she was awarded Kenyon's Tomsich Science Award as well as the Board of Trustees Junior Teaching Award.

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