

The Math News

Volume 2, number 5 December 2, 2002

Mathematics of Rainbows

What causes the rainbow's circular shape?

What causes double rainbows?

Why and when do red or orange rainbows occur?

These are among the questions answered in the beautifully illustrated book, *The Rainbow Bridge: Rainbows in Art, Myth, and Science*, by USNA Adjunct Professor Raymond L. Lee, Jr. and Alistair B. Fraser. This recently published book explores the history of the mathematics and physics of rainbows, as well as their place in mythology and art. See <http://www.usna.edu/Users/oceano/raylee/RainbowBridge/contents.html>

Math in the Movies

"Enigma" is the fictional story of a brilliant young mathematician and code breaker in 1943 England, frantically working to crack the German Enigma code and save an allied convoy crossing the Atlantic with 10,000 passengers and vital supplies. Meanwhile, the woman he's in love with has disappeared, and evidence suggests that she might have been a spy. "Enigma" stars Dougray Scott, Kate Winslet, Jeremy Northam, and Saffron Burrows. Codebreaking efforts in WWII helped lead to the development of modern computers. For more on the history and mathematics of cryptanalysis in WWII see <http://www.codesandciphers.org.uk/>

Preparing for a Calculus Exam? Don't forget to check out the old exams on the Math Department website.

Career Corner

Accountants prepare and analyze financial reports. They work for private corporations in financial analysis and planning and for the government managing taxpayer funds. Tax accountants prepare tax returns.

Actuaries study risks and solve real world problems involving money, probabilities and future events. They usually work for insurance companies determining reasonable insurance rates.

Cryptologists design and analyze schemes to transmit secret information. They work in government, industry, and academia.

Statisticians collect and analyze numerical data in a wide variety of disciplines including medicine, sports, economics, psychology, and engineering.

Solution to Circles Problem from the 2001 Virginia Tech Regional Mathematics Contest:

The radius of the third circle is $6 - 4\sqrt{2}$.

For previous issues of Math News, see <http://mathweb.mathsci.usna.edu/faculty/mathnews/mathnews.html> and <http://mathweb.mathsci.usna.edu/faculty/mathnews/mathnews2.html>

***HAPPY HOLIDAYS
FROM THE USNA MATH DEPARTMENT!***