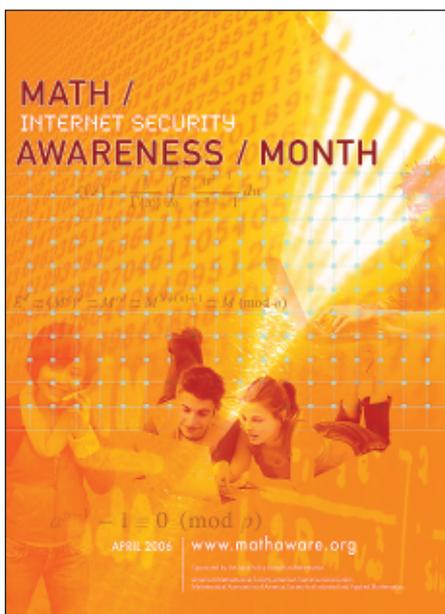


For Your Information

Mathematics Awareness Month, April 2006

The AMS, the American Statistical Association (ASA), the Mathematical Association of America (MAA), and the Society for Industrial and Applied Mathematics (SIAM) announce that the theme for Mathematics Awareness Month 2006 is **Mathematics and Internet Security**.

When you use your home computer to log on to your bank account and pay a bill, to buy a book from Amazon,



or to buy or sell something on ebay, you assume your personal details—your Social Security number, your bank account access password, or your credit card number—cannot be read by an unauthorized third party. What makes this possible is mathematics.

Pure mathematics, in fact. For, by a surprising twist of fate, today's Internet commerce makes

heavy use of encryption techniques that depend upon results in number theory, a branch of mathematics that until relatively recently was thought of as strictly "pure mathematics", with no real-world applications. In his book *A Mathematician's Apology* the famous British number theorist G. H. Hardy declared, "The 'real' mathematics of

the 'real' mathematicians, the mathematics of Fermat and Euler and Gauss and Abel and Riemann, is almost wholly 'useless'." Yet it is mathematics developed by those very mathematicians, along with Hardy himself, that keeps today's Internet transactions secure.

According to Bruce Schneier, one of the world's foremost security experts and the author of the influential book *Applied Cryptography*, "Cryptographic security comes from mathematics, not from people and not from machines. Mathematical security is available to everyone, both the weak and the powerful alike, and gives ordinary people a very powerful tool to protect their privacy. That's the cryptographic ideal of security."

But number-theory-based encryption is not the only case where mathematics plays an important role in Internet security. Several of the essays presented on the Mathematics Awareness Month website (<http://www.mathaware.org>) describe other examples. And if history is any guide, we can expect more in the years to come.

Each year in April the Joint Policy Board for Mathematics sponsors Mathematics Awareness Month to recognize the importance of mathematics through written materials and an accompanying poster that highlight mathematical developments and applications in one particular area.

Editor's Note: This issue of the *Notices* carries a feature article, "Find Me a Hash", by Susan Landau, on the theme of Mathematics Awareness Month.

—AMS announcement