About the Cover

Is *n* prime?

"Problema, numeros primos a compositis dignoscendi . . . ad gravissima ac utilissima totius arithmeticae pertinere ...," asserted Gauss in §329 of the *Disquisitiones Arithmeticae. [The problem of distinguishing prime from composite numbers . . . is one of the most serious and useful of all that pertain to arithmetic.]*

". . . scientiae dignitas requirere videtur, ut omnia subsidia ad solutionem problematis tam elegantis ac celebris sedulo excolantur." *[The dignity of the science requires that every aid be assiduously cultivated in a search for the solution of such an elegant and celebrated problem.]*

Gauss was among the first to begin this search for sophisticated ways to solve the problem, and until very recently there was not even a theoretical understanding of its true complexity. The algorithm displayed on the cover is extraordinarily brief, the most recent version (posted March 4, 2003) of the breakthrough recently found by Agrawal, Kayal, and Saxena of the Indian Institute of Technology at Kanpur. It is the first to show that primality can be tested in polynomial time, as discussed in the article by Folkmar Bornemann.

The image from the *Disquisitiones* was graciously made at extremely short notice by Marcia Tucker, Librarian of the School of Historical Studies at the Institute for Advanced Study. The copy of the book that it was taken from is part of the Lessing J. Rosenwald Collection.

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