A Variant of Lehmer’s Conjecture, II: The CM-case

Sanoli Gun and V. Kumar Murty

Abstract. Let \( f \) be a normalized Hecke eigenform with rational integer Fourier coefficients. It is an interesting question to know how often an integer \( n \) has a factor common with the \( n \)-th Fourier coefficient of \( f \). It has been shown in previous papers that this happens very often. In this paper, we give an asymptotic formula for the number of integers \( n \) for which \( (n, a(n)) = 1 \), where \( a(n) \) is the \( n \)-th Fourier coefficient of a normalized Hecke eigenform \( f \) of weight 2 with rational integer Fourier coefficients and having complex multiplication.

The Institute of Mathematical Sciences, CIT Campus, Taramani, India
e-mail: sanoli@imsc.res.in

Department of Mathematics, University of Toronto, Toronto, ON, M5S 2E4
e-mail: murty@math.toronto.edu

Received by the editors March 26, 2008; revised October 27, 2009.
Published electronically January 17, 2011.
AMS subject classification: 11F11, 11F30.