An Extension of the Dirichlet Density for Sets of Gaussian Integers

L. C. Régo and R. J. Cintra

Abstract. Several measures for the density of sets of integers have been proposed, such as the asymptotic density, the Schnirelmann density, and the Dirichlet density. There has been some work in the literature on extending some of these concepts of density to higher dimensional sets of integers. In this work, we propose an extension of the Dirichlet density for sets of Gaussian integers and investigate some of its properties.

Departamento de Estatística, Universidade Federal de Pernambuco, Cidade Universitária, 50740-540, Recife, PE, Brazil
e-mail: leandro@de.ufpe.br rjdsc@stat.ufpe.org

Received by the editors April 8, 2010; revised July 1, 2010.
Published electronically August 3, 2011.
The second author acknowledges partial financial support from the Department of Foreign Affairs and International Trade (DFAIT), Canada, and the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Brazil. Part of the second author’s work was done during his sabbatical at the University of Calgary, Calgary, AB, Canada.
Keywords: Gaussian integers, Dirichlet density.