The Number of Real Quadratic Fields Having Units of Negative Norm

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Abstract

We study the density of the set of real quadratic fields for which the norm of the fundamental unit equals -1 inside the set of real quadratic fields containing elements of norm -1. A conjectural density is derived from a single heuristic assumption, and experimental data supporting this assumption are given. We finally discuss how close one can get to proving such conjectural densities.