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Infrastructure in Real Quadratic Function Fields

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Abstract The principal topic of this article is to extend Shanks' infrastructure ideas in real quadratic number fields to the case of real quadratic congruence function fields. In this view, this paper is intended as a "low-brow" approach to the theory of ideals and operations in the ideal class group. We summarize some basic properties of ideals and provide elementary proofs of the main results. For the purpose of this paper, only an elementary knowledge of the subject is needed, and we mainly follow the introductory notes of Artin.