

Local-global principle for quadratic forms

This work will be focused on the problems of representation and equivalence for quadratic forms. We will prove the fundamental Hasse-Minkowski theorem, which describes the rational representation and equivalence using properties of the form over the completions of \mathbb{Q} : the real and p -adic numbers. We will refer to this procedure as *local-global principle*. Furthermore, we shall describe the methods for computing the p -adic invariants, and show their relation to the representation problem. Finally, we show how the local-global partially extends to integral forms, in particular to indefinite ones of dimension at least 4.