

Schoof's algorithm is the starting point for the most efficient methods for determining the number of rational points on an elliptic curve defined over a finite field. The goal of this thesis is to introduce the subject of elliptic curves, with the emphasis on Weierstrass curves over a finite field, to describe Schoof's algorithm and its time complexity, and, finally, to implement it in C++ with the support of NTL. The implementation provides a user with a reasonably fast utility for determining the order of Weierstrass curves over finite fields of size up to 128 bits.