

The goal of this thesis is to explain and implement Schoof's algorithm for counting points on elliptic curves over finite fields. We start by defining elliptic curve as a set of points satisfying certain equation and then proceeding to define an operation on this set. Theoretical background needed for the algorithm is presented in the second chapter. Finally, the Schoof's algorithm is introduced in the third chapter, supplemented by an implementation in SageMath open-source software.