

Lecture I: Rational points on elliptic and hyperelliptic curves

Abstract. Given a random elliptic or hyperelliptic curve of genus g over \mathbf{Q} , how many rational points do we expect the curve to have? Equivalently, how often do we expect a random polynomial of degree n to take a square value over the rational numbers? In this talk, we give an overview of recent conjectures and theorems giving some answers and partial answers to this question.