

Abstract

If E is an elliptic curve then we can reduce modulo p to obtain an elliptic curve E_p for almost all primes p . The number of points on E_p satisfies $|E_p - (p + 1)| \leq 2\sqrt{p}$. The first part of my talk will be fairly basic; I will give some examples and sketch a proof of this inequality. Then I will discuss the Sato-Tate conjecture which describes how the numbers $(E_p - p - 1)/\sqrt{p}$ are distributed in the interval $[-2, 2]$. The conjecture has been proven by Richard Taylor in 2006 for certain classes of elliptic curves.