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# Addendum to "Large Integral Points on Elliptic Curves" (Math. Comp., v. 48, 1987, pp. 425–436)

**By Don Zagier**

The author has been informed by Serge Lang that the conjecture that all integral solutions of $y^2 = x^3 + ax + b$ are polynomially bounded in $a$ and $b$ (cf. [3, Section 2]), and the observation that a naive probabilistic argument would lead to the expectation that the number $\rho = (\log x)/\log(\max(|a|^{1/2}, |b|^{1/3}))$ does not ever exceed $10 + o(1)$, have been made by him and by Harold Stark; Lang conjectured that all solutions, with the possible exception of a finite number of parametric families, satisfy $\rho \leq 10 + o(1)$ (the necessity of the caveat about exceptional families followed from a related example of Stark's). For all this, see [1]. It has been shown by Paul Vojta that Lang's conjecture in this form follows from his own more general Diophantine conjecture [2]. Recently, Noam Elkies has constructed an infinite family of curves having an integral solution with $\rho = 12 + o(1)$.

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1. S. LANG, "Conjectured Diophantine estimates on elliptic curves," in *Arithmetic and Geometry* (M. Artin and J. Tate, eds.), Vol. I, Birkhäuser, Boston, 1983, pp. 155–171.

2. P. VOJTA, *Diophantine Approximations and Value Distribution Theory*, Lecture Notes in Math., vol. 1239, Springer, Berlin, 1987.

3. D. ZAGIER, "Large integral points on elliptic curves," *Math. Comp.*, v. 48, 1987, pp. 425–436.

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