

Rational points with large denominator on Erdős–Selfridge superelliptic curves

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Abstract. In 2016, Bennett and Siksek showed that if the Erdős–Selfridge curve

$$(x + 1) \cdots (x + k) = y^\ell, \quad k \geq 3, \ell \text{ prime},$$

has a rational solution in x and y , then $\ell \leq e^{3k}$. In this paper, we show that if there exists a positive rational solution on the above curve, then either the denominator of the solution is large or $\ell \leq k$.

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