

Cao, Zhenfu; Dong, Xiaolei

The Diophantine equation $x^2 + b^y = c^z$. (English) Zbl 0987.11020
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Let m, r be positive integers such that $2 \mid m, 2 \nmid r$ and $r > 1$. Let U_r, V_r be integers with $V_r + U_r\sqrt{-1} = (m + \sqrt{-1})^r$. In this paper the authors prove that if $a = |V_r|, b = |U_r|, c = m^2 + 1, b > 8 \cdot 10^6$ and b is a prime with $b \equiv 3 \pmod{4}$, then the equation $x^2 + b^y = c^z$ has only the positive integer solution $(x, y, z) = (a, 2, r)$.

{Reviewer's remark: The conjecture proposed by the authors is false}.

Reviewer: [Le Maohua \(Zhanjiang\)](#)

MSC:

[11D61](#) Exponential Diophantine equations

Cited in **2** Documents

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