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Diophantine equations and congruences. (English summary)

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For the Diophantine equations $ax^2 - by^2 = -1$ over the integers, several sets of sufficient conditions are given such that the equation has no integer solution but has solutions modulo n for all $n > 1$. For example, one set of conditions is: $a \equiv 7 \pmod{8}$, b (resp., $-a$) is a quadratic residue modulo a (resp., modulo b), and a condition for convergents of the continued fraction of \sqrt{ab} . These generalize the author's earlier results for $a = p$ a prime [*J. Algebra Number Theory Appl.* **4** (2004), no. 2, 353–362; [MR2105881 \(2005g:11040\)](#)].

Reviewed by *Xianke Zhang*

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