

On the Diophantine equation $\prod_{i=1}^m (a_i^k - 1) = y^n$

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Abstract. In this paper, we consider the Diophantine equation $\prod_{i=1}^m (a_i^k - 1) = y^n$, where $m \geq 3$, $a_1, a_2, \dots, a_m$ are fixed integers which are pairwise coprime. We have proved that the equation has only finitely many solutions (k, y, n) with $n > 1$. We also study some special cases of equation when $m = 3$ and $m = 4$.

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