On the Exponential Diophantine Equation (an-2)(bn-2)=x^2

zafer ŞİAR[1] and Refik Keskin[2]

[1]Bingöl University
[2]Sakarya University

May 5, 2020

Abstract

In this paper, we deal with the equation (an-2)(bn-2)=x^2,2[?]a3.1 We solve the equation (3.1) for (a,b)[?]{(2,10),(4,100),(10,58),(3,45)}. Moreover, we show that (an-2)(bn-2)=x^2 has no solution n,x if 2|n and gcd(a,b)=1. We also give a conjecture which says that the equation (2n-2)((2P_{k})n-2)=x^2 has only the solution (n,x)=(2,Q_{k}), where k>3 is odd and P_{k},Q_{k} are Pell and Pell Lucas numbers, respectively. We also conjecture that if the equation (an-2)(bn-2)=x^2 has a solution n,x, then n[?]6.

Hosted file

`MathMethod (a^n-2)(b^n-2)=x^2 -NEW.pdf` available at https://authorea.com/users/292911/articles/420758-on-the-exponential-diophantine-equation-a%E2%81%BF-2-b%E2%81%BF-2-x