ABSTRACT

SOME FROMS OF THE DIOPHANTINE AND ITS SOLUTION

By

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The Diophantine equation is an equation that adds two or more monomials of one or zero degree. The Diophantine equation is divided into two, namely the linear and non linear Diophantine equations. This research determine a solution to the linear Diophantine equation using the two variables $ax + by = c$, and the three variables $ax + by + cz = d$. As well as the quadratic non linear Diophantine equation $ax^2 + by^2 = c^2$, the Fibonacci identity and Lucas numbers $(x, y) = (F_n, F_{n-1})$ or $(-F_n, -F_{n_1})$, and also the Pell equation $x^2 - Dy^2 = 1$.

Keywords: Diophantine equation, Fibonacci number, Lucas number, Pells equation

ABSTRAK

BEBERAPA BENTUK PERSAMAAN DIOPHANTINE DAN SOLUSINYA

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Persamaan Diophantine merupakan persamaan yang menjumlahkan dua atau lebih monomial yang berderajat satu atau nol. Persamaan Diophantine terbagi menjadi dua yaitu persamaan Diophantine linear dan non linear. Penelitian ini menentukan solusi dari persamaan Diophantine linear dua variabel $ax + by = c$, dan tiga variabel $ax + by + cz = d$. Selanjutnya, mendapatkan solusi dari persamaan Diophantine non linear kuadrat $ax^2 + by^2 = c^2$, identitas Fibonacci dan bilangan Lucas $(x, y) = (F_n, F_{n-1})$ atau $\left(-F_n, -F_{n_1}\right)$, dan persamaan Pell $x^2 - Dy^2 = 1$.

Kata kunci: Persamaan Diophantine, bilangan Fibonacci, bilangan Lucas, persamaan Pell