

1116-VW-1699

Roman Wong* (rwong@washjeff.edu), Mathematics Department, Washington & Jefferson College, 60 South Lincoln Street, Washington, PA 15301. *Connectivity of One Step Apart Integers.*

Inspired by the Fibonacci identity $f_{n-1}f_{n+1} + 1 = f_n^2$ for odd n , we define a relation \sim on \mathbb{Z}^+ by $a \sim b$ if and only if $ab + 1 = k^2$ for some k . The relation results in an undirected infinite graph G with vertex set \mathbb{Z}^+ and an edge between a and b if $a \sim b$. We investigate the connectivity of G . By using Pell's equations and Bhaskara Lemma, we show that G has finite diameter and that every edge in G belongs to a 3-cycle and a 4-clique. We also find explicit formulas for any element in $N(a)$, the neighbor of a . (Received September 21, 2015)