Abstract

A square difference 3-equitable labeling of a graph $G$ with vertex set $V$ is a bijection $f$ from $V$ to $\{1,2,\ldots,|V|\}$ such that if each edge $uv$ is assigned the label $-1$ if $|f(u)^2 - f(v)^2| \equiv 1 \pmod{4}$, the label $0$ if $|f(u)^2 - f(v)^2| \equiv 0 \pmod{4}$, and the label $1$ if $|f(u)^2 - f(v)^2| \equiv 3 \pmod{4}$. The paper investigates the properties and applications of such labelings.
\[ f(v) \equiv 4 \mod 4 \]

then the number of edges labeled with \( i \) and the number of edges labeled with \( j \) differ by at most 1 for \(-1 \leq i, j \leq 1\). If a graph has a square difference 3-equitable labeling, then it is called square difference 3-equitable graph. In this paper, we investigate the square difference 3-equitable labeling behavior of middle graph of paths, fan graphs, \((P_{2n}, S_{1})\), \(mK_{3}\), triangular snake graphs and friendship graphs.

References


Index Terms

Computer Science Applied Mathematics

Keywords
Square difference 3-equitable labeling, square difference 3-equitable graphs