An antimagic labeling in $K_{2n,2n} - nC_4$

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Abstract

An antimagic labeling of a finite simple graph with m edges and n vertices is a bijection from the set of edges to the set of integers $1, 2, \ldots, m$ such that all n vertices sums are pairwise distinct, where the vertex sum of a vertex v is the sum of labels of all edges incident with the vertex v. An graph is called antimagic if it has an antimagic labeling. In [1], N. Hartsfield and G. Ringel conjectured in 1990 that all connected graphs except K_2 are antimagic. In this paper, we prove a special case that the graph $K_{2n,2n} - nC_4$ is antimagic.

Keywords and phrases : *Antimagin graph, antimagic labeling.*

1. Introduction

In 1989, the concept of antimagic graph is introduced by Hartsfield and Ringel [1]. All graphs in this paper are finite, simple, undirected and without loops.

Definition 1. An antimagic labeling of a graph $G(V, E)$ with m edges and n vertices is a bijection $f : E \to \{1, 2, \ldots, m\}$ such that the induced vertex sum $f^+ : V \to \mathbb{N}$ is injective, where $f^+(v) = \Sigma\{f(u, v) \mid u \text{ incident to } v \text{ in } G\}$. A graph is called antimagic if it has an antimagic labeling.

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