LOCAL ANTIMAGIC COLORING OF SOME GRAPHS

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Abstract: Consider a simple graph G without K_2 component with vertex set V and edge set E. A local antimagic labeling f of G is a one-to-one mapping of edges to distinct positive integers $1, 2, \ldots, |E|$ such that the weights of adjacent vertices are distinct, where weight of a vertex is sum of labels assigned to the edges incident to it. These weights of the vertex induced by local antimagic labeling result in a proper vertex coloring of the graph G. The local antimagic chromatic number of G, denoted as $\chi_{la}(G)$, as the smallest number of distinct weights obtained across all possible local antimagic labelings of G. In this paper, we explore the local antimagic chromatic numbers of various classes of graphs, including the union of certain graph families, the corona product of graphs, and the necklace graph. In addition, we provide constructions for infinitely many graphs for which $\chi_{la}(G)$ equals the chromatic number $\chi(G)$ of the graph.

Keywords and Phrases: Antimagic Graph, Local Antimagic Graph, Local Antimagic Chromatic Number.

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