

ABSTRACT

FACE MAGIC AND FACE ANTIMAGIC LABELING ON MODIFIED CYCLE GRAPH C_3

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Given a plane graph $G(V(G), E(G), F(G))$, where $V(G)$ is the set of vertices, $E(G)$ is the set of edges, and $F(G)$ is the set of faces of G . A face magic labeling is defined as a bijective function from the set of vertices, edges, and faces of G a graph to the set of positive integers such that the weight of every face is equal. Meanwhile, a face antimagic labeling is a bijective function from the set of vertices, edges, and faces of a graph to the set of positive integers such that the face weights form an arithmetic sequence with a common difference of 1. The weight of a face is defined as the sum of the label of the face, the labels of its incident vertices, and the labels of its bounding edges. Modifications of the cycle graph C_3 yield various new graph types that are interesting to study, both in terms of structure and labeling. Some of these developed graphs include triangular snake graphs, double triangular snake graphs, house graphs, double house graphs, and triangular ladder graphs. Each of these graphs has distinct face characteristics and planar structures, making the study of labeling on these graphs important to extend the concepts of face magic and face antimagic labeling on plane graphs. This study discusses face magic labeling on triangular snake graphs, double triangular snake graphs, and triangular ladder graphs, as well as face antimagic labeling on house graphs, double house graphs, and triangular ladder graphs. In this study, labelings of vertices, edges, and faces are constructed for the graphs under consideration. The results show that the triangular snake graph T_n , the double triangular snake graph DT_n , and the triangular ladder graph TL_n admit face magic labelings. Meanwhile, the house graph H_n , the double house graph DH_n , and the triangular ladder graph TL_n admit face antimagic labelings with a common difference of 1.

Keywords: *face magic labeling, face antimagic labeling, triangular snake graph, double triangular snake graph, triangular ladder graph, house graph, double house graph.*