

On the Face-Magic Strength of Cartesian Products of Paths and Cycles

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Let G be a graph with an embedding which induces a set of faces. A face-magic labeling of G is an assignment of consecutive integers to the vertices, edges, and faces of G so that for every n -sided face, the sum of its label and the labels of the vertices and edges surrounding it is equal to some fixed constant $\mu(n)$ for all n . If such a labeling exists, we call G a face-magic graph and the $\mu(n)$ are called its n -sided magic constants.

Given a face-magic graph G , we ask: What is the spectrum for the n -sided magic constants? We explore this question for prisms, generalized prisms, and the Cartesian product of two cycles.

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