

Department of Applied Mathematics and Statistics
The Johns Hopkins University

SEMINAR

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September 29, 2005
304 Whitehead Hall
Refreshments: 3:30 p.m.
Seminar: 4:00p.m.

TOTALLY MAGIC GRAPHS

ABSTRACT

Suppose G is a graph with v vertices and e edges, and λ is a *total labeling*, that is, a one-to-one map

$$\lambda : V(G) \cup E(G) \rightarrow \{1, 2, \dots, v + e\}.$$

Then λ is called an *edge magic total labeling* on G if, for any edge xy ,

$$\lambda(x) + \lambda(xy) + \lambda(y) = k$$

for some constant k ; and λ is a *vertex magic total labeling* if, for any vertex x ,

$$\lambda(x) + \sum_{y \sim x} \lambda(xy) = h$$

for some constant h .

A *totally magic labeling* is a total labeling that is both edge magic and vertex magic. We call G a *totally magic graph* if it has such a labeling. (Usually $h \neq k$.)

Do such graphs exist? How common are they?