

SUPERMAGIC GRAPHS HAVING A SATURATED VERTEX¹

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Abstract

A graph is called supermagic if it admits a labeling of the edges by pairwise different consecutive integers such that the sum of the labels of the edges incident with a vertex is independent of the particular vertex. In this paper we establish some conditions for graphs with a saturated vertex to be supermagic. Inter alia we show that complete multipartite graphs $K_{1,n,n}$ and $K_{1,2,\dots,2}$ are supermagic.

Keywords: supermagic graph, saturated vertex, vertex-magic total labeling.

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REFERENCES

- [1] E. Bezegová and J. Ivančo, *On conservative and supermagic graphs*, *Discrete Math.* **311** (2011) 2428–2436.
doi:10.1016/j.disc.2011.07.014
- [2] J.A. Gallian, *A dynamic survey of graph labeling*, *Electron. J. Combin.* **18** (2011) #DS6.
- [3] J. Ivančo, *On supermagic regular graphs*, *Math. Bohem.* **125** (2000) 99–114.
- [4] J. Ivančo, *Magic and supermagic dense bipartite graphs*, *Discuss. Math. Graph Theory* **27** (2007) 583–591.
doi:10.7151/dmgt.1384

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- [5] J. Ivančo, *A construction of supermagic graphs*, AKCE Int. J. Graphs Comb. **6** (2009) 91–102.
- [6] J. Ivančo and T. Polláková, *On magic joins of graphs*, Math. Bohem. (to appear).
- [7] J. Ivančo and A. Semaničová, *Some constructions of supermagic graphs using antimagic graphs*, SUT J. Math. **42** (2006) 177–186.
- [8] J.A. MacDougall, M. Miller, Slamin and W.D. Wallis, *Vertex-magic total labelings of graphs*, Util. Math. **61** (2002) 3–21.
- [9] J. Sedláček, Problem 27. Theory of Graphs and Its Applications, Proc. Symp. Smolenice, Praha (1963) 163–164.
- [10] A. Semaničová, *Magic graphs having a saturated vertex*, Tatra Mt. Math. Publ. **36** (2007) 121–128.
- [11] B.M. Stewart, *Magic graphs*, Canad. J. Math. **18** (1966) 1031–1059.
doi:10.4153/CJM-1966-104-7
- [12] W.D. Wallis, *Magic Graphs* (Birkhäuser, Boston - Basel - Berlin, 2001).
doi:10.1007/978-1-4612-0123-6

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