MMG Mathematical Modelling and Geometry

Volume 7, No 2, pp. 25 – 31 (2019)

Full text

The crossing numbers of several graphs of order eight with paths

Emília Draženská

Department of Mathematics and Theoretical Informatics, Faculty of Electrical Engineering and Informatics Technical University of Košice, Letná 9, 042 00 Košice, Slovak Republic

e-mail: emilia.drazenska@tuke.sk

Abstract. The crossing number of a simple graph G is the minimum number of edge crossings in any drawing of G in the plane. There are several classes of graphs for which crossing numbers have been published. One of them is the Cartesian product of two graphs. We give a new results by giving the exact values of crossing numbers of Cartesian product of a few graphs of order eight with paths.

Keywords: graphs, drawings, crossing numbers.

MSC numbers: 05C10; 05C38

[©] The author(s) 2019. Published by Tver State University, Tver, Russia

References

- BOKAL, D.: On the crossing numbers of Cartesian products with paths, J. Graph Theory B 97 (2007), 381–384.
- [2] DRAŽENSKÁ, E.: The crossing numbers of products of paths with 7-vertex trees, *Creative Mathematics and Informatics*, 23 (2014), 109–119.
- [3] GAREY, M. R., JOHNSON, D. S.: Crossing number is NP-complete, SIAM J. Algebraic and Discrete Methods 4, (1983) 312–316.
- [4] JENDROL', S., ŠČERBOVÁ,M.: On the crossing numbers of $S_m \times P_n$ and $S_m \times C_n$, Časopis pro pěstování matematiky **107** (1982), 225–230.
- [5] KLEITMAN, D. J.: The crossing number of $K_{5,n}$ J. Comb. Theory 9, (1970) 315–323.
- [6] KLESC, M.: On the crossing numbers of Cartesian products of stars and paths or cycles, *Mathematica Slovaca* 41 (1991), 113–120.
- [7] KLEŠČ, M., PETRILLOVÁ, J.:The crossing numbers of products of paths with graphs of order six, *Discussiones Mathematicae - Graph theory* 33 (2013), 571–582.
- [8] TURÁN, P.: "A note of welcome", J. Graph Theory 1, (1977) 7–9.
- [9] WOODALL, D.R.: Cyclic-order graphs and Zarankiewicz's crossing-number conjecture, J. Graph Theory 17 (1993), 657–671.
- [10] ZARANKIEWICZ, K.: "On a problem of P. Turán concerning graph", Fund. Math. 41, (1977) 137–145.