

Also available at <http://amc-journal.eu>
ISSN 1855-3966 (printed edn.), ISSN 1855-3974 (electronic edn.)
Ars Mathematica Contemporanea Volume 5, Issue 1, Year 2012, Pages 73-76

A note on Zagreb indices inequality for trees and unicyclic graphs

Vesna Andova, Nathann Cohen, Riste Škrekovski

Abstract

For a simple graph G with n vertices and m edges, the inequality $M_1(G)/n \leq M_2(G)/m$, where $M_1(G)$ and $M_2(G)$ are the first and the second Zagreb indices of G , is known as Zagreb indices inequality. Recently Vukičević and Graovac [VG], and Caporossi, Hansen and Vukičević [CHV] proved that this inequality holds for trees and unicyclic graphs, respectively. Here, alternative and shorter proofs of these results are presented.

[VG] D. Vukičević and A. Graovac, Comparing Zagreb M_1 and M_2 indices for acyclic molecules, *MATCH Commun. Math. Comput. Chem.* 57 (2007), 587-590.

[CHV] G. Caporossi, P. Hansen and D. Vukičević, Comparing Zagreb indices of cyclic graphs, *MATCH Commun. Math. Comput. Chem.* 63 (2010), 441-451.

Keywords: First Zagreb index, second Zagreb index.

Opomba o neenakosti v zvezi z zagrebškima indeksoma za drevesa in enociklične grafe

Povzetek

Za enostaven graf G z n vozlišči in m povezavami je neenakost $M_1(G)/n \leq M_2(G)/m$, kjer sta $M_1(G)$ in $M_2(G)$ prvi in drugi zagrebški indeks grafa G , znana pod imenom neenakost zagrebških indeksov. Nedavno sta Vukičević in Graovac [VG] dokazala, da ta neenakost velja za drevesa, Caporossi, Hansen in Vukičević [CHV] pa so dokazali, da ta neenakost velja za grafe, ki vsebujejo natanko en cikel. V članku so predstavljeni alternativni in krajši dokazi teh rezultatov.

[VG] D. Vukičević and A. Graovac, Comparing Zagreb M_1 and M_2 indices for acyclic molecules, MATCH Commun. Math. Comput. Chem. 57 (2007), 587-590.

[CHV] G. Caporossi, P. Hansen and D. Vukičević, Comparing Zagreb indices of cyclic graphs, MATCH Commun. Math. Comput. Chem. 63 (2010), 441-451

Ključne besede: Prvi zagrebški indeks, drugi zagrebški indeks.

