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A note on acyclic number of planar graphs*

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Abstract: The acyclic number $a(G)$ of a graph G is the maximum order of an induced forest in G . The purpose of this short paper is to propose a conjecture that $a(G) \geq \left(1 - \frac{3}{2g}\right)n$ holds for every planar graph G of girth g and order n , which captures three known conjectures on the topic. In support of this conjecture, we prove a weaker result that $a(G) \geq \left(1 - \frac{3}{g}\right)n$ holds. In addition, we give a construction showing that the constant $\frac{3}{2}$ from the conjecture cannot be decreased.

Keywords: Induced forest, acyclic number, planar graph, girth.

Math. Subj. Class.: 05C10, 05C15

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Opomba o acikličnem številu ravninskih grafov*

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Povzetek: Aciklično število $a(G)$ grafa G je maksimalni red inducirane gozda v G . Namen tega kratkega članka je predstavitev domneve, da $a(G) \geq \left(1 - \frac{3}{2g}\right)n$ velja za vsak ravninski graf G ožine g in reda n , ki obsega tri znane hipoteze s tega področja. V podporo tej domnevi dokažemo šibkejši rezultat, da velja $a(G) \geq \left(1 - \frac{3}{g}\right)n$. Poleg tega podamo konstrukcijo, ki pokaže, da konstante $\frac{3}{2}$ iz te hipoteze ni mogoče zmanjšati.

Ključne besede: Induciran gozd, aciklično število, ravninski graf, ožina.

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