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There is a unique crossing-minimal rectilinear drawing of K_{18}*

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Abstract

We show that, up to order type isomorphism, there is a unique crossing-minimal rectilinear drawing of K_{18}. It is easily verified that this drawing does not contain any crossing-minimal drawing of K_{17}. Therefore this settles, in the negative, the following question from Aichholzer and Krasser: is it true that, for every integer $n \geq 4$, there exists a crossing-minimal drawing of K_n that contains a crossing-minimal drawing of K_{n-1}?

Keywords: Rectilinear crossing number, complete graphs, k-edges.

Math. Subj. Class. (2020): 05C10, 05C60

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Obstaja ena sama ravnočrtna risba K_{18} z minimalnim številom presečišč*

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Povzetek

Pokažemo, da je, do izomorfizma vrste reda natančno, ena sama ravnočrtna risba grafa K_{18} z minimalnim številom presečišč. Lahko je preveriti, da ta risba ne vsebuje nobene risbe grafa K_{17} z minimalnim številom presečišč. Zato to podaja negativen odgovor na naslednje vprašanje, ki sta ga zastavila Aichholzer in Krasser: ali je res, da za vsako celo število $n \geq 4$ obstaja risba grafa K_n z minimalnim številom presečišč, ki vsebuje risbo grafa K_{n-1} z minimalnim številom presečišč?

Ključne besede: Ravnočrtno število presečišč, polni grafi, k-povezave.

Math. Subj. Class. (2020): 05C10, 05C60

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