

Locally s -arc-transitive graphs arising from product action*

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Abstract

We study locally s -arc-transitive graphs arising from the quasiprimitive product action (PA). We prove that, for any locally $(G, 2)$ -arc-transitive graph with G acting quasiprimively with type PA on both G -orbits of vertices, the group G does not act primitively on either orbit. Moreover, we construct the first examples of locally s -arc-transitive graphs of PA type that are not standard double covers of s -arc-transitive graphs of PA type, answering the existence question for these graphs.

Keywords: Locally s -arc-transitive graph, quasiprimitive group, product action.

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Lokalno s -ločno tranzitivni grafi, ki nastanejo iz produktnega delovanja*

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Povzetek

Raziskujemo lokalno s -ločno tranzitivne grafe, ki jih dobimo iz kvaziprimitivnega produktnega delovanja (PA). Dokažemo, da za poljuben lokalno $(G, 2)$ -ločno tranzitivni graf, pri katerem grupa G deluje kvaziprimitivno s tipom PA na obeh G -orbitah točk, grupa G ne deluje primitivno na nobeni od orbit. Še več, konstruiramo prve primere lokalno s -ločno tranzitivnih grafov tipa PA, ki niso standardni dvojni krovi s -ločno tranzitivnih grafov tipa PA, s čimer je odgovorjeno na eksistenčno vprašanje v zvezi s temi grafi.

Ključne besede: Lokalno s -ločno tranzitivni graf, kvaziprimitivna grupa, produktno delovanje.

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