

On 2-closures of rank 3 groups

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Abstract

A permutation group G on Ω is called a *rank 3 group* if it has precisely three orbits in its induced action on $\Omega \times \Omega$. The largest permutation group on Ω having the same orbits as G on $\Omega \times \Omega$ is called the *2-closure* of G . A description of 2-closures of rank 3 groups is given. As a special case, it is proved that the 2-closure of a primitive one-dimensional affine rank 3 group of sufficiently large degree is also affine and one-dimensional.

Keywords: 2-closure, rank 3 group, rank 3 graph, permutation group.

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O 2-zaprtjih grup ranga 3

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Povzetek

Permutacijska grupa G na Ω se imenuje grupa ranga 3, če ima njeno inducirano delovanje na $\Omega \times \Omega$ natančno tri orbite. Največja permutacijska grupa na Ω , ki ima iste orbite kot G na $\Omega \times \Omega$, se imenuje 2-zaprtje grupe G . Predstavimo opis 2-zaprtij grup ranga 3. Kot poseben primer dokažemo, da je 2-zaprtje primitivne enodimenzionalne afine grupe ranga 3 dovolj velikega reda prav tako afino in enodimenzionalno.

Ključne besede: 2-zaprtje, grupa ranga 3, graf ranga 3, permutacijska grupa.

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