

On flag-transitive automorphism groups of symmetric designs*

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Abstract

In this article, we study flag-transitive automorphism groups of non-trivial symmetric (v, k, λ) designs, where λ divides k and $k \geq \lambda^2$. We show that such an automorphism group is either point-primitive of affine or almost simple type, or point-imprimitive with parameters $v = \lambda^2(\lambda + 2)$ and $k = \lambda(\lambda + 1)$, for some positive integer λ . We also provide some examples in both possibilities.

Keywords: Symmetric design, flag-transitive, point-primitive, point-imprimitive, automorphism group.

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O praporno tranzitivnih grupah avtomorfizmov simetričnih načrtov*

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Povzetek

V tem članku raziskujemo praporno tranzitivne grupe avtomorfizmov netrivialnih simetričnih (v, k, λ) načrtov, kjer λ deli k in $k \geq \lambda^2$. Pokažemo, da je takšna grupa avtomorfizmov bodisi točkovno primitivna afinega ali skoraj enostavnega tipa bodisi je točkovno neprimitivna s parametroma $v = \lambda^2(\lambda + 2)$ in $k = \lambda(\lambda + 1)$ za neko pozitivno celo število λ . Podamo tudi nekaj primerov za vsako od teh dveh možnosti.

Ključne besede: Simetrični načrt, praporno tranzitiven, točkovno primitiven, točkovno neprimitiven, grupa avtomorfizmov.

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