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Enumeration of I-graphs: Burnside does it again

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Abstract

We give explicit and efficiently computable formulas for the number of isomorphism classes of I-graphs, connected I-graphs, bipartite connected I-graphs, generalized Petersen graphs, and bipartite generalized Petersen graphs. The tool that we use is the well-known Cauchy-Frobenius-Burnside lemma.

Keywords: I-graphs, generalized Petersen graphs, Cauchy-Frobenius-Burnside lemma, arithmetical functions.

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Enumeracija I-grafov: Burnside ponovno deluje

Povzetek

Podamo eksplicitne in učinkovito izračunljive formule za število isomorfno razredov I-grafov, povezanih I-grafov, dvodelnih povezanih I-grafov, posplošenih Petersenovih grafov in dvodelnih posplošenih Petersenovih grafov. Orodje, ki ga uporabljamo, je dobro znana Cauchy-Frobenius-Burnside-ova lema.

Ključne besede: I-grafi, posplošeni Petersenovi grafi, Cauchy-Frobenius-Burnside-ova lema, aritmetične funkcije.