

Cayley graphs of order kp are hamiltonian for $k < 48$

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Abstract

We provide a computer-assisted proof that if G is any finite group of order kp , where $1 \leq k < 48$ and p is prime, then every connected Cayley graph on G is hamiltonian (unless $kp = 2$). As part of the proof, it is verified that every connected Cayley graph of order less than 48 is either hamiltonian connected or hamiltonian laceable (or has valence ≤ 2).

Keywords: Cayley graph, hamiltonian cycle, hamiltonian connected, hamiltonian laceable.

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Cayleyjevi grafi reda kp so hamiltonski za vsak $k < 48$

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Povzetek

Predstavimo računalniško podprt dokaz naslednje trditve: če je G poljubna končna grupa reda kp , kjer je $1 \leq k < 48$, p pa je praštevilo, potem je vsak povezan Cayleyjev graf grupe G hamiltonski (razen v primeru $kp = 2$). Dokaz hkrati potrjuje, da je vsak povezan Cayleyjev graf, katerega red je manjši od 48, bodisi hamiltonsko povezan bodisi hamiltonsko čipkast (oziroma ima valenco ≤ 2).

Ključne besede: Cayleyjev graf, hamiltonski cikel, hamiltonsko povezan, hamiltonsko čipkast.

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