ON q-POWER CYCLES IN CUBIC GRAPHS

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Abstract

In the context of a conjecture of Erdős and Gyárfás, we consider, for any $q \geq 2$, the existence of q-power cycles (i.e., with length a power of q) in cubic graphs. We exhibit constructions showing that, for every $q \geq 3$, there exist arbitrarily large cubic graphs with no q-power cycles. Concerning the remaining case $q = 2$ (which corresponds to the conjecture of Erdős and Gyárfás), we show that there exist arbitrarily large cubic graphs whose all 2-power cycles have length 4 only, or 8 only.

Keywords: cubic graphs, q-power cycles, Erdős-Gyárfás conjecture.

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