

POWER DOMINATION IN THE GENERALIZED PETERSEN GRAPHS¹

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Abstract

The problem of monitoring an electric power system by placing as few measurement devices in the system can be formulated as a power dominating set problem in graph theory. The power domination number of a graph is the minimum cardinality of a power dominating set. Xu and Kang [*On the power domination number of the generalized Petersen graphs*, J. Comb. Optim. 22 (2011) 282–291] study the exact power domination number for the generalized Petersen graph $P(3k, k)$, and propose the following problem: determine the power domination number for the generalized Petersen graph $P(4k, k)$ or $P(ck, k)$. In this paper we give the power domination number for $P(4k, k)$ and present a sharp upper bound on the power domination number for the generalized Petersen graph $P(ck, k)$.

Keywords: power domination, domination, generalized Petersen graph, electric power system.

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