The Domination Number of the Intersection Graph of Subgroups of a Group

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Let G be a non-trivial group and $|G|$ is not a prime. The intersection graph of G, denoted by $\Gamma(G)$ is a graph, whose vertex set is the set of all non-trivial proper subgroups of G and two distinct vertices H and K are adjacent if and only if $H \cap K \neq 1$. In this paper, we determine the domination number of $\Gamma(G)$, where G is an abelian group or a p-group of order at least p^3, which has a cyclic subgroup of index p (p is a prime). Also, it is shown that if G is a nilpotent group, a super-solvable group or a finitely generated solvable group, then the domination number of $\Gamma(G)$ is finite, but if G is a p-group, a solvable group or a finitely generated group, then the domination number of $\Gamma(G)$ is not necessarily finite. Finally, we obtain some upper bounds for the domination number of some groups for instance symmetric groups.