

GRADED S-1-ABSORBING PRIME SUBMODULES IN GRADED MULTIPLICATION MODULES

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ABSTRACT. Let G be a group with identity e . Let R be a commutative G -graded ring with non-zero identity, $S \subseteq h(R)$ a multiplicatively closed subset of R and M a graded R -module. In this article, we introduce and study the concept of graded S -1-absorbing prime submodules. A graded submodule N of M with $(N :_R M) \cap S = \emptyset$ is said to be graded S -1-absorbing prime, if there exists an $s_g \in S$ such that whenever $a_h b_{h'} m_k \in N$, then either $s_g a_h b_{h'} \in (N :_R M)$ or $s_g m_k \in N$ for all non-unit elements $a_h, b_{h'} \in h(R)$ and all $m_k \in h(M)$. Some examples, characterizations and properties of graded S -1-absorbing prime submodules are given. Moreover, we give some characterizations of graded S -1-absorbing prime submodules in graded multiplicative modules.

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