ABSTRACT

Graded N-prime Submodules

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On this dissertation, we discuss about a graded N-prime submodule of a graded module over a graded ring. This research is motivated by research on prime submodule that has been done by Suhn in 2010. This research is also motivated by research about a graded prime ideal on ring.

There are two main results of this research. The first result is about a graded N-prime submodule of a graded module. The second result is about a graded N-prime submodule of a graded fraction module.

In the first result, we consider graded N-prime submodule as introduced by Suhn, and investigate their properties besides characterizations. For example we prove that if X is a fully invariant graded submodule of M, then the residual ideal of X by M a graded ideal of S, and ifM is a graded quasi-projective module, X is a graded N-prime sumodule of M and Y $\subset$ X is a fully invariant graded submodule of M, then X/Y is a graded N-prime submodule of M/Y . Also, we characterize graded N-prime submodule.

In the second result, we define concept from Suhn on graded R module MD^{-1} and investigate their properties besides characterizations. For example we prove that if X is a graded submodule of M and $D \subset$ h(R) is right denominator, then XD^{-1} is a graded submodule of MD^{-1}. It is also shown if f : M $\rightarrow$ M is a graded module homomorphism, then $\varphi : MD^{-1} \rightarrow MD^{-1}$ with $\varphi(m/d) = f(m)/d$ is a graded module homomorphism. Also, we give the characterizationon a graded N-prime submodule of a graded fraction modul

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