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68588. *Contracting endomorphisms and Gorenstein modules.*

A finite module M over a noetherian local ring (R, \mathfrak{m}, k) is said to be Gorenstein if $\text{Ext}_R^i(k, M) = 0$ for all $i \neq \dim R$. An endomorphism $\varphi: R \rightarrow R$ of rings is called contracting if $\varphi^i(\mathfrak{m}) \subseteq \mathfrak{m}^2$ for some $i \geq 1$. Letting S denote the R -module R with action induced by φ , we prove: A finite R -module M is Gorenstein if and only if $\text{Hom}_R(S, M) \cong M$ and $\text{Ext}_R^i(S, M) = 0$ for $1 \leq i \leq R$. (Received February 02, 2009)