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*On Cohen-Macaulay rings*

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**Abstract:** In this paper, we use a characterization of  $R$ -modules  $N$  such that  $fd_R N = pd_R N$  to characterize Cohen-Macaulay rings in terms of various dimensions. This is done by setting  $N$  to be the  $d$ th local cohomology functor of  $R$  with respect to the maximal ideal where  $d$  is the Krull dimension of  $R$ .

**Keywords:** injective, precovers, preenvelopes, canonical module, Cohen-Macaulay,  $n$ -Gorenstein, resolvent, resolutions

**AMS Subject Classification:** 13C14, 13D45, 13H10, 18G10