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Greg G Oman* (ggoman@gmail.com), 4321 Pleasant Hill Rd., Athens, OH 45701. *Cardinalities of Residue Fields of Noetherian Integral Domains.*

We determine the relationship between the cardinality of a commutative Noetherian integral domain and the cardinality of a residue field. One consequence of the main result is that it is provable in ZFC that there is a Noetherian domain of cardinality \aleph_1 with a finite residue field, but the statement “There is a Noetherian domain of cardinality \aleph_2 with a finite residue field” is equivalent to the negation of the Continuum Hypothesis. If time permits, we will use these results to describe the ordered set $\text{Spec}(R[x])$, where R is a one-dimensional Noetherian domain with finitely many maximal ideals. (Received September 07, 2009)