962-13-292 **Michael J Khoury*** (khoury_m@denison.edu), Michael Khoury, Jr., Slayter Box 1396, Denison University, Granville, OH 43023. *Eminent Domains and Algebraically-Defined Integers.*

We say that an integral domain D is eminent in F if F is the field of quotients of D. The domain $\mathbf{Z}$ is the smallest eminent domain of $\mathbf{Q}$. If a field F has a smallest eminent domain, the elements of this domain can be designated as generalized integers in that field. This definition of integer would have two properties that the usual definition of algebraic integer lacks: it is motivated by purely algebraic concerns, and it is not inherently limited to algebraic extension fields. I demonstrate that this algebraic means of defining integers will not work because smallest domains, except for a handful of enumerated special cases, do not exist. The arguments are based on generalizations to arbitrary fields of classical algebraic number theoretical ideas. Complete characterizations of eminent domains of F are given in the cases where F is an algebraic number field and where F is an algebraic extension over a finite field. A strong result on eminent domains of arbitrary fields is proven, with the following important consequence. *Theorem.* Except $\mathbf{Q}$ and algebraic extensions of $\mathbf{Z}_p$, no other field has a smallest or even minimal eminent domain. (Received September 07, 2000)