

Growth and identities of semigroups of matrices

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Finitely generated subsemigroups $S \subseteq M_n(K)$ of the multiplicative monoid of $n \times n$ matrices over a field K are considered. If $S = \langle a_1, \dots, a_n \rangle$, then the corresponding growth function is defined by $d(n) =$ the number of elements of S that can be presented as words of length at most n in the generators a_1, \dots, a_n . Classical results on the growth of groups and partial results on the growth of semigroups of matrices will be presented. Connections between the growth rate of S , the identities satisfied in S and the structure of S will be discussed.