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Mark Medwid. *Matrix representations as a first topic in abstract algebra?*

Computer algebra systems are now widely available in college classrooms. In this environment, matrix representations of groups provide a unifying concept across abstract algebra, linear algebra, and geometry. Almost all finite groups encountered by undergraduates can be represented as multiplicative groups of concise, block-diagonal, binary matrices. Such representations provide simple examples for beginning a group theory course. More importantly, these representations provide concrete models for “abstract” concepts. We describe computer lab assignments which explore group actions, subgroups, normality, cosets, quotient groups, homomorphisms, isomorphisms, and kernels. (Received July 08, 2016)