

A magic rectangle set on Abelian groups

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A magic rectangle of order mn , $MR(a, b)$, is an arrangement of the numbers from 0 to $ab - 1$ in an $(a \times b)$ rectangle such that each number occurs exactly once in the rectangle and the sum of the entries of each row is the same and the sum of entries of each column is also the same. The earliest known magic square is a 3×3 magic square called *Lo Shu magic square* can be traced in Chinese literature as far back as 2800 B.C.

In this talk we present a generalization of magic squares. Namely, a Γ -magic rectangle set $MRS_{\Gamma}(a, b; c)$ of order abc is a collection of c arrays $(a \times b)$ whose entries are elements of group Γ of order abc , each appearing once, with all row sums in every rectangle equal to a constant $\omega \in \Gamma$ and all column sums in every rectangle equal to a constant $\delta \in \Gamma$.

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