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Enumerating Magic Squares by Polytope Geometry

Abstract for the Combinatorics Seminar 2011 November 29

In an $n \times n$ magic square there are n^2 distinct positive integers and all row, column, and diagonal sums are equal. The number of magic squares, where either the magic sum or the range of allowed numbers is specified, is a hard problem. One approach to the count is geometrical. I will show how this is done for 3×3 squares.

The talk is based on the paper "Six Little Squares and How their Numbers Grow" by Beck and Zaslavsky (Journal of Integer Sequences, 2011).

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