

University of Colorado
Department of Mathematics
Problem of the Month
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It is possible to fill a 3×3 array with the numbers $1, 2, \dots, 9$ in such a way that the product of the numbers in the i th row equals the product of the numbers in the i th column for each $i = 1, 2, 3$. One way to do this is:

5	2	4
1	9	6
8	3	7

Show that, if $n > 8$, it is impossible to fill an $n \times n$ array with the numbers $1, 2, \dots, n^2$ in such a way that the product of the numbers in the i th row equals the product of the numbers in the i th column for each $i = 1, 2, \dots, n$.