Problemen

Problem Section

Problem A (folklore)

In how many ways can one place coins on an $n \times n$ chessboard such that for every square the number of (horizontally or vertically) adjacent squares that contain a coin is odd?

Problem B (folklore)

A magic $n \times n$ matrix of order r is an $n \times n$ matrix whose entries are non-negative integers and whose row and column sums all equal r. Let $r > 0$ be an integer. Show that a magic $n \times n$ matrix of order r is the sum of r magic $n \times n$ matrices of order 1.

Problem C (proposed by Tejaswi Navilarekallu)

Find all finite groups G with the following property: for each $g, h \in G$ at least one of the pairs (g, h), (g, gh), and (h, hg) is a pair of conjugate elements.

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