

**Weekly Problem Competition**

**Friday, April 11, 2008**

The State introduces a new lottery: on a ticket with  $36 = 6 \times 6$  cells, you have to mark 6 cells. During the raffle 6 arbitrary cells are announced "black". The ticket is a winning ticket if none of the marked cells are among black ones. What is the minimum number of tickets you have to buy, such that at least one ticket is a winning ticket. Generalize the problem to the case when the array of cells has dimension  $N = k \times k$ , and you have to mark  $k$  cells, for an even  $k$ .

**Remarks:**

The rules of the competition <http://www.math.iit.edu/~weeklyproblem>

You have to submit the solution by email, to [weeklyproblem@math.iit.edu](mailto:weeklyproblem@math.iit.edu)

**Good Luck !**