Problem F. Matrix

Time limit	6000 ms
Mem limit	65536 kB
OS	Linux

Given a $N \times N$ matrix A, whose element in the i-th row and j-th column A_{ij} is an number that equals $i^2 + 100000 \times i + j^2 - 100000 \times j + i \times j$, you are to find the M-th smallest element in the matrix.

Input

The first line of input is the number of test case.
For each test case there is only one line contains two integers, $N(1 \le N \le 50{,}000)$ and $M(1 \le M \le N \times N)$. There is a blank line before each test case.

Output

For each test case output the answer on a single line.

Sample

Input	Output
12 1 1 2 1 2 2 2 3 2 4 3 1 3 2 3 8 3 9 5 1 5 25 5 10	3 -99993 3 12 100007 -199987 -99993 100019 200013 -399969 400031 -99939