

Problem C. Eight Queens

Input file: standard input
Output file: standard output
Time limit: 2 seconds
Memory limit: 1024 megabytes

In ICPCCamp, there is a chessboard with n rows and m columns.

Bobo places k distinguishable queens in k different cells on the chessboard. There are $t = \binom{n \times m}{k}$ different configurations where

$$\binom{n}{k} = \frac{n(n-1)\dots(n-k+1)}{k(k-1)(k-2)\dots 1}.$$

If c_i is the number of cells attacked by at least one queen in the i -th configuration, find out $(c_1 + c_2 + \dots + c_t)$ modulo $(10^9 + 7)$.

Note that a queen can attack all cells in the same row, column and diagonal including the cell she stands on.

Input

3 integers n, m, k ($1 \leq n, m \leq 10^9, 1 \leq k \leq \min\{n \times m, 8\}$).

Output

An integer denotes $(c_1 + c_2 + \dots + c_t)$ modulo $(10^9 + 7)$.

Examples

standard input	standard output
2 2 2	24
8 8 8	723759469