

SPOJ Problem Set (classical)

8285. Rectangles in a Matrix

Problem code: RECTMAT

In a matrix with n rows and m columns, (i,j) is the cell in i -th row and j -th column ($0 \leq i < n, 0 \leq j < m$). A rectangle (r_0, r_1, c_0, c_1) in a matrix is the set of cells (i,j) where $r_0 \leq i < r_1$ and $c_0 \leq j < c_1$. ($0 \leq r_0 < r_1 \leq n, 0 \leq c_0 < c_1 \leq m$). Two rectangles are called independent if the intersection of their cell set is empty.

Given n, m, k , find the number of ways to choose k independent rectangles from a $n \times m$ matrix. The order of these k rectangles doesn't matter, see sample for further clarification.

Input

One line contains three integers n, m, k ($1 \leq n, m \leq 1000, 1 \leq k \leq 6$).

Output

For each test case, output the number of ways, modulo $10^9 + 7$.

Example

Input:

```
2 2 4
10 10 1
```

Output:

```
1
3025
```

Explanation

First case: You have to find the number of ways of choosing 4 independent rectangles from a 2×2 matrix. The only way to do this is to choose each cell as a separate rectangle.

Constraints

($1 \leq n, m \leq 1000, 1 \leq k \leq 6$).

Total number of test cases is around 150. Not all the test cases are included.

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