

## Problem F. Minimum Bounding Box 2

**Time limit** 2000 ms

**Mem limit** 1048576 kB

### Problem Statement

We have a grid with  $H$  rows and  $W$  columns.

We choose  $K$  cells in this grid uniformly at random. The score is the number of cells in the minimum rectangle (whose edges are parallel to the axes of the grid) that contains all of the chosen cells.

Find the expected score modulo 998244353.

► What is rational number modulo 998244353?

### Constraints

- $1 \leq H, W \leq 1000$
- $1 \leq K \leq HW$
- All values in the input are integers.

### Input

The input is given from Standard Input in the following format:

$H$   $W$   $K$

### Output

Print the answer.

### Sample 1

Input	Output
2 2 2	665496238

The score equals 4 in the following two cases: if cells (1, 1) and (2, 2) are chosen, or cells (1, 2) and (2, 1) are chosen. The other four cases yield a score of 2.

Thus, the expected score equals  $\frac{4 \times 2 + 2 \times 4}{6} = \frac{8}{3}$ . Since  $665496238 \times 3 \equiv 8 \pmod{998244353}$ , you should print 665496238.

### Sample 2

Input	Output
10 10 1	1

Sample 3

Input	Output
314 159 2653	639716353