Problem B. Falling Domino

Problem Description

Shigure Ui was inspired by a YouTube video featuring the arrangement and toppling of dominoes to create intricate patterns (similar to the picture above). Intrigued by this, she decided to purchase a set of $n \times m$ dominoes to try her hand at it.

However, she soon realized that things were not as straightforward as she initially thought. Each domino in the set had a unique weight. Additionally, for a domino positioned at (i, j) ($1 \leq i \leq n$, $1 \leq j \leq m$), it would only topple under the following conditions:

- If $i > 1$ and $j > 1$: Both dominoes located at $(i-1, j)$ and $(i, j-1)$ must have greater weights than it.
- Alternatively, if $i = 1$: The domino located at $(i, j-1)$ must be heavier.
- Finally, if $j = 1$: The domino located at $(i-1, j)$ must be heavier.

Once she arranges all the dominoes, Shigure Ui plans to use Ui Beam (ういビーーーーム) to topple the domino located at $(1, 1)$. She hopes that this will trigger a chain reaction causing all the other dominoes to fall.

Currently, Shigure Ui is holding a specific domino, which is known to be the kth heaviest among all the dominoes, and wants to place it on an empty board. She is curious about how many different positions she can place this domino.

Input Format

The input consists of a single line containing three integers: n, m, and k. These values represent Shigure Ui's intention to arrange dominoes in an n by m matrix, along with the rank of the domino's weight that Shigure Ui currently holds.

Output Format

Output a single integer indicating the number of different positions where Shigure Ui can place the domino on an empty board.

Constraints

- $n, m \geq 1$.
- $n \times m \leq 10^{14}$.
- $1 \leq k \leq n \times m$.
- All input values are integers.

Subtasks

1. (30 points) $n \times m \leq 10^7$.
2. (20 points) $n = m$.
3. (50 points) No additional constraints.

No.	Testdata Range	Time Limit (ms)	Memory Limit (KiB)
Samples	1-3	1000	262144
1	4-19	1000	262144
2	20-26	1000	262144
3	1-38	1000	262144

Samples

Sample Input 1

```
3 3 2
```

This sample input satisfies the constraints of all the subtasks.

Sample Output 1

```
2
```

There are two possible positions ($(1, 2)$ and $(2, 1)$) to place the second heaviest domino.

Sample Input 2

```
1 1000000 48763
```

This sample input satisfies the constraints of Subtasks 1, 3.

Sample Output 2

```
1
```

Sample Input 3

```
10000000 10000000 4878763
```

This sample input satisfies the constraints of Subtasks 2, 3.

Sample Output 3

```
75888381
```