



IdeaVerse

Problem Statement

Oski is exploring IdeaVerse, a world structured as a grid with H rows and W columns. Each cell (r, c) contains an energy value $E_{r,c}$ which can be positive, negative, or zero.

Oski begins his journey at the top-left corner $(1, 1)$ and needs to reach the bottom-right corner (H, W) . From any cell (r, c) , he can only move in two directions:

- Move right to $(r, c + 1)$;
- Move down to $(r + 1, c)$.

To help Oski along the way, Ikro gives him up to K chances to reverse the energy of a contiguous part of his path, or not use them at all. For each chance used, the energy value of every cell in the chosen part is multiplied by -1 . Note that the chosen parts for different chances cannot overlap.

Help Oski find the maximum total energy he can collect on a path from $(1, 1)$ to (H, W) .

Input Format

The first line contains three integers H , W , and K ($1 \leq H, W \leq 500$; $0 \leq K \leq 20$), representing the number of rows, columns, and the maximum number of chances, respectively.

The next H lines each contain W integers $E_{r,c}$ ($-10^9 \leq E_{r,c} \leq 10^9$), representing the energy value of each cell in the grid.

Output Format

Print a single integer representing the maximum total energy Oski can collect.

Sample Input 1

```
3 4 1
1 -5 -5 2
2 1 -5 2
1 2 1 3
```

Sample Output 1

```
21
```

Explanation Sample 1

Oski only has 1 chance. He can take the path $(1, 1) \rightarrow (1, 2) \rightarrow (1, 3) \rightarrow (2, 3) \rightarrow (2, 4) \rightarrow (3, 4)$. The energy values along this path are 1, -5 , -5 , -5 , 2, 3. By applying the reversal on the contiguous part consisting of the three -5 values, they become 5, 5, 5. The total collected energy is $1 + 5 + 5 + 5 + 2 + 3 = 21$.

Sample Input 2

```
2 2 2
10 5
5 10
```

Sample Output 2

```
25
```

Explanation Sample 2

There is no need to reverse any part of the path.