Bishop

Task

Given a chessboard with n rows and m columns, calculate the number of possible distinct placements of k bishops on the board, such that no two bishops attack each other.

Input

The input will contain several cases, each case on a separate line. Each line will contain n, m and k separated by a space. The last case will have $n = m = k = -1$ and should not be processed.

Output

For each case print the answer on a separate line.

Specifications

- $1 \leq n, m \leq 13$
- $1 \leq k \leq n \cdot m$
- two bishops attack each other, if they are on the same diagonal

Example

Input	Output
2 2 2	4
3 3 1	9
8 8 64	0
-1 -1 -1	