

## Eight Kings (Hard Version)

Time Limit: 1 Second  
Memory Limit: 256 MB

If you have seen the normal version of this problem in this class before, the only difference between the two versions is the constraints of  $n$  and  $m$ .

Given an  $n \times m$  ( $1 \leq n, m \leq 10$ ) chessboard, calculate the number of ways to place  $k$  ( $0 \leq k \leq n \times m$ ) kings such that no pair of kings can attack each other. Two placements are different if exists at least one cell such that the cell is occupied in one placement and unoccupied in the other placement.

A king can attack pieces in the neighboring 8 cells, as shown in the picture below:

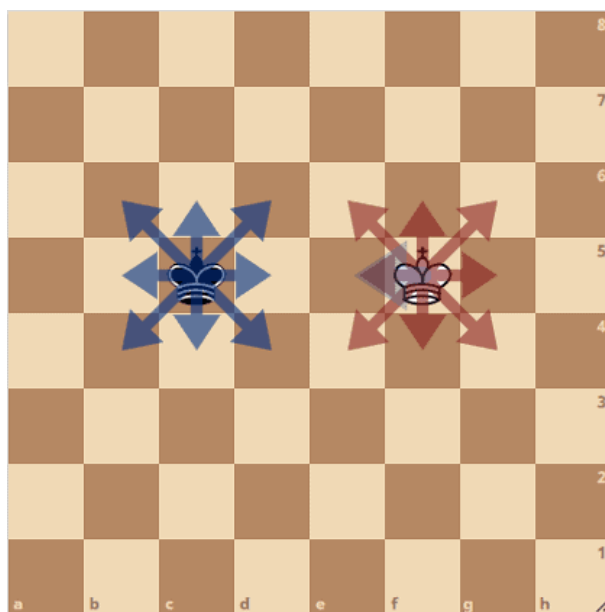


Figure 1: An illustration of King attack rule. Source: <https://herculeschess.com/how-does-the-king-move-in-chess/>

### Input

The only line of input contains three integers  $n$ ,  $m$ , and  $k$  ( $1 \leq n, m \leq 10$ ,  $0 \leq k \leq n \times m$ ), as described in the problem statement.

### Output

Output a single number denoting the number of ways to place  $k$  kings on the  $n \times m$  chessboard such that no pair of kings can attack each other.

### Sample Inputs

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3 3 2

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### Sample Outputs

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16

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