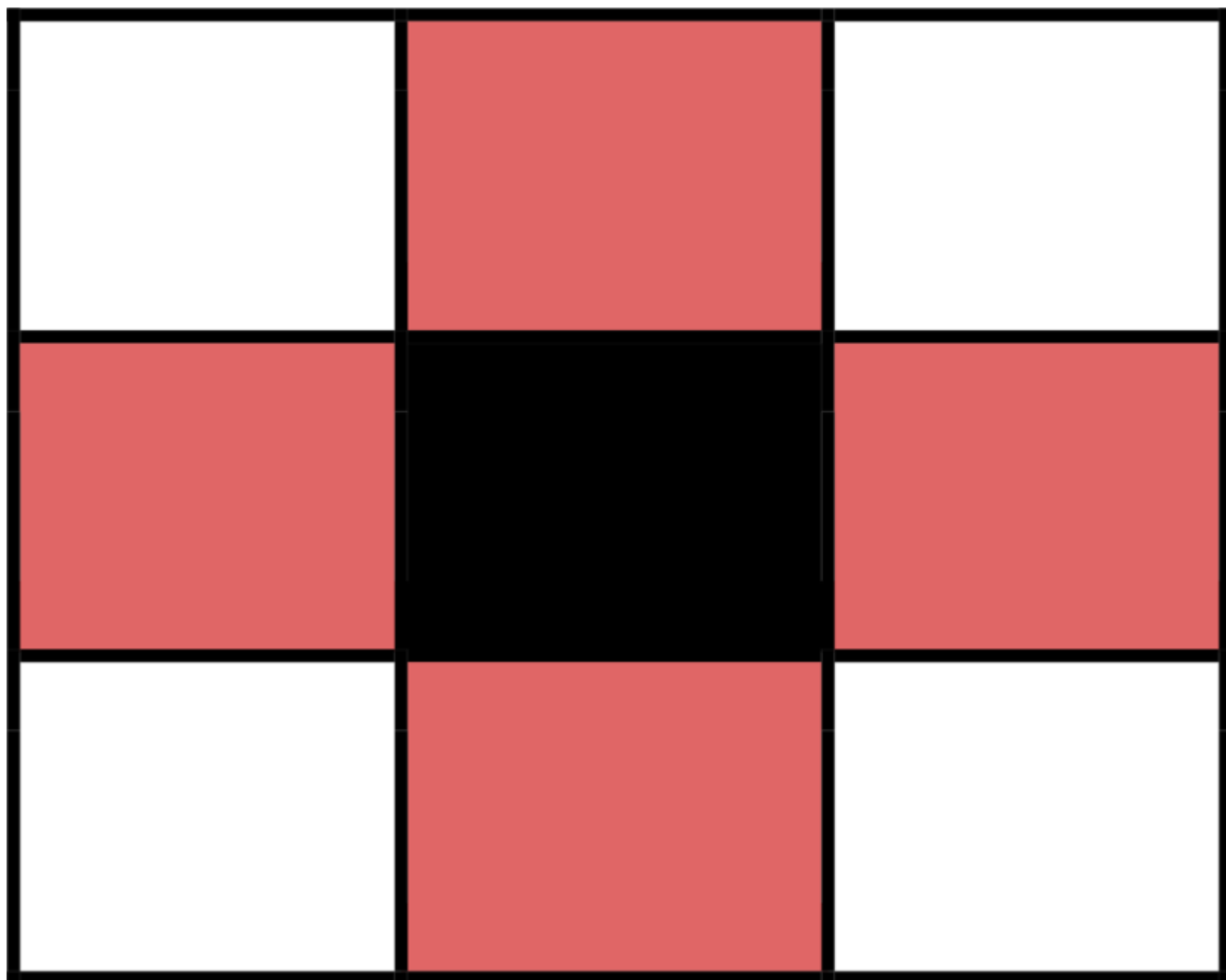


Game of Life Simulation

The game of life is in a grid of N rows and N columns. Each cell in the grid is either **dead** or **alive**. In the beginning only a **single cell** is alive. Then at each steps cells become dead or alive based on the following criteria:

1. *If 1 or 3 of the neighboring cells (up, down, left or right not in diagonal directions) are alive the cell becomes or stays alive.*
2. *If 0 or 2 or 4 of the neighboring cells are alive the cell becomes dead or stays dead.*



The four cells marked in red are the neighboring cells of the black cell. So, if 1 or 3 of the red cells are alive, the black cell will be alive in the next step or dead otherwise.

You are given

1. N - size of the grid
2. R and C - the row and column of the first cell alive, (rows are numbered from 1 to N from top to bottom and columns are numbered from 1 to N from left to right)
3. S - the number of steps

You need to find the **number of cells alive** after S steps.

Input Format

First row will contain ***N***, the second row will contain ***R*** and ***C*** separated by a space and the third row will contain ***S***.

Constraints

- $1 \leq N \leq 100$
- $1 \leq R, C \leq N$
- $0 \leq S \leq 100$

Output Format

You should output the ***total number of cells*** alive after ***S*** steps.

Sample Input 0

```
4
2 2
3
```

Sample Output 0

```
6
```

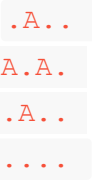
Explanation 0

Cells alive are marked with A and dead cells are marked with .

Initial state:



After step 1:



After step 2:



After step 3:

...A

..A.

.A.A

A.A.

The answer is **6**