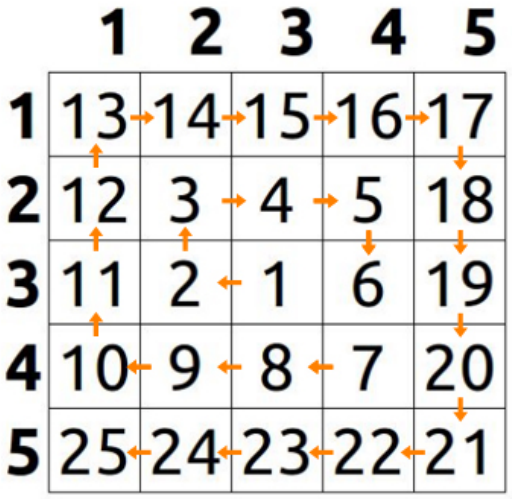
Problem L

Pretty Table

A pretty table is a grid with N rows and N columns containing integers from 1 to N^2. The numbers are written on the grid following these rules:

- At first, 1 is written in the center cell, i.e. the cell on the (N/2+1)-th row and ((N/2+1)-th column, where / is the integer division (i.e. rounded down since N/2 here is always positive).
- Then, starting from the cell on the left of the cell containing integer 1, in clockwise direction, continues writing the integers 2 to N^2 one by one, surrounding the existing numbers.

For example, if N = 5, the table will look like this:



Given N, R_1, R_2, C_1, and C_2, calculates the sum of the integers contained within the sub-grid having (R_1, C_1) and (R_2, C_2) as the top-left-most cell and the bottom-right-most cell. Note that the table index starts from 1 to N on both row and column.

Input

The input contains five integers in a line: N R_1 R_2 C_1 C_2 ($1 \le N \le 1{,}000{,}000{,}000$; $1 \le R_1 \le R_2 \le N$; $1 \le C_1 \le C_2 \le N$) as stated in the problem description.

Output

The output contains the remainder of the answer when divided by 1,000,000,007, in a line.

Sample Input	Output for Sample Input
5 3 3 3 3	1
5 1 5 1 5	325
5 4 5 4 5	70
1 1 1 1 1	1