Can You Bounce?

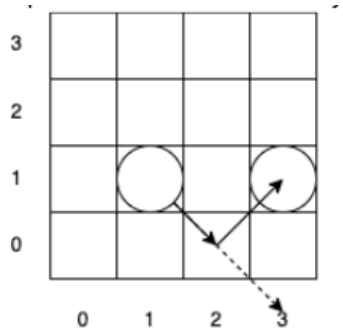
Max. score: 100

This problem is no longer available for practice. Apology for any inconvenience!

Sam just got another gift puzzle from his dad. This time, the puzzle consists of *N x N* grid where each row and column numbered from *0* to *N - 1*, a pawn piece and a monitor to interact.

Firstly, Sam will choose the starting position and place his pawn at that position. Next, the monitor will ask how many possible paths to move to coordinate *(A, B)* with **exactly** *K* turns. For each turn the pawn can move vertically, horizontally or diagonally from its current position, but unfortunately the puzzle is broken and instead of moving once per turn, it will move in the stated direction twice. For example, if the pawn was formerly in position *(x,y)* of the grid, it can move to *(x - 2, y - 2), (x - 2, y), (x - 2, y + 2), (x, y - 2), (x, y + 2), (x + 2, y - 2), (x + 2, y), (x + 2, y + 2).* And if the pawn hits the edge of the grid, it will bounce in the direction that it came from. For example, if the pawn is on *(0, 0)* and it tries to move to *(x - 2, y - 2),* it will bounce back to *(2, 2)* and if the pawn is on *(1, 1)* and it tries to move to *(x + 2, y - 2),* it will bounce to *(3, 1)* (see figure below).

Note that the move is instantaneous, so move from *(0, 0)* to *(2, 2)* using either *(x - 2, y - 2), (x - 2, y + 2), (x + 2, y - 2) or (x + 2, y + 2)* is considered the same move. So, 2 path *P, Q* are considered different if there are $P_i \neq Q_i$ for any $0 \leq i < K$. Sam has decided to ask for your help to solve the puzzle.



As the answer may be very large, you can answer in modulo $10^9 + 7$.

Input Format

- The first line will be given an integer *N* which indicates the size of the grid
- The second line will be given *2* integers *X* and *Y* which indicates the starting position
- The next line will be given *3* integers *A, B, C,* indicating the query for position *A, B* in *C* turns.

Output Format

- Output *T* lines, each line is the answer for the *i-th* testcase

Constraint

$1 \leq N \leq 8$

$0 \leq X, Y, A, B \leq N - 1$

$0 \leq K \leq 10^{18}$

SAMPLE INPUT

```
4
1 1
1 3 1
```

SAMPLE OUTPUT

```
1
```

Explanation

NA

Time Limit:	1.0 sec(s) for each input file.
Memory Limit:	256 MB
Source Limit:	1024 KB
Marking Scheme:	Score is assigned when all the testcases pass.
Allowed Languages:	Bash, C, C++, C++14, C++17, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, Java 14, JavaScript(Rhino), JavaScript(Node.js), Julia, Kotlin, Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, Python 3.8, Racket, Ruby, Rust, Scala, Swift-4.1, Swift, TypeScript, Visual Basic