Grid Walking

You are situated in an N dimensional grid at position $(x_1, x_2, \ldots, x_N)$. The dimensions of the grid are $(D_1, D_2, \ldots D_N)$. In one step, you can walk one step ahead or behind in any one of the N dimensions. (So there are always $2 \times N$ possible different moves). In how many ways can you take M steps such that you do not leave the grid at any point? You leave the grid if at any point x_i, either $x_i \leq 0$ or $x_i > D_i$.

Input Format

The first line contains the number of test cases T. T test cases follow. For each test case, the first line contains N and M, the second line contains $x_1, x_2, \ldots, x_N$ and the 3rd line contains $D_1, D_2, \ldots, D_N$.

Constraints

- $1 \leq T \leq 10$
- $1 \leq N \leq 10$
- $1 \leq M \leq 300$
- $1 \leq D_i \leq 100$
- $1 \leq x_i \leq D_i$

Output Format

Output T lines, one corresponding to each test case. Since the answer can be really huge, output it modulo 1000000007.

Sample Input

```
1
2 3
1 1
2 3
```

Sample Output

```
12
```

Explanation

Starting from (1, 1) in a 2×3 2-D grid, and need to count the number of possible paths with length equal to 3. Here are the 12 paths:

```
(1, 1) -> (1, 2) -> (1, 1) -> (1, 2)
(1, 1) -> (1, 2) -> (1, 1) -> (2, 1)
(1, 1) -> (1, 2) -> (1, 3) -> (1, 2)
(1, 1) -> (1, 2) -> (1, 3) -> (2, 3)
(1, 1) -> (1, 2) -> (2, 2) -> (1, 2)
(1, 1) -> (1, 2) -> (2, 2) -> (2, 1)
(1, 1) -> (1, 2) -> (2, 2) -> (2, 3)
(1, 1) -> (2, 1) -> (1, 1) -> (1, 2)
(1, 1) -> (2, 1) -> (1, 1) -> (2, 1)
(1, 1) -> (2, 1) -> (2, 2) -> (2, 1)
(1, 1) -> (2, 1) -> (2, 2) -> (1, 2)
(1, 1) -> (2, 1) -> (2, 2) -> (2, 3)
```