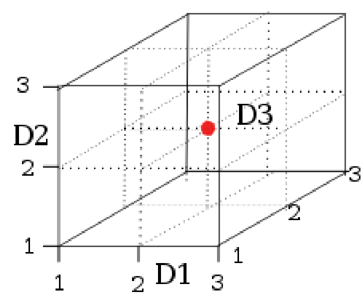
Grid Walking

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. This implies that there are always $2 \times n$ possible moves if movements are unconstrained by grid boundaries. How many ways can you take m steps without leaving the grid at any point? You leave the grid if at any point $x[i]$, either $x[i] \leq 0$ or $x[i] > D[i]$.

For example, you start off in a 3 dimensional grid at position $x = [2, 2, 2]$. The dimensions of the grid are $D = [3, 3, 3]$, so each of your axes will be numbered from 1 to 3. If you want to move $m = 1$ step, you can move to the following coordinates: $\{[1, 2, 2], [2, 1, 2], [2, 2, 1], [3, 2, 2], [2, 3, 2], [2, 2, 3]\}$.



If we started at $x = [1, 1, 1]$ in the same grid, our new paths would lead to $\{[1, 1, 2], [1, 2, 1], [2, 1, 1]\}$. Other moves are constrained by $x[i] \not\leq 0$.

Function Description

Complete the *gridWalking* function in the editor below. It should return an integer that represents the number of possible moves, modulo $(10^9 + 7)$.

gridWalking has the following parameter(s):

- *m*: an integer that represents the number of steps
- *x*: an integer array where each $x[i]$ represents a coordinate in the i^{th} dimension where $1 \leq i \leq n$
- *D*: an integer array where each $D[i]$ represents the upper limit of the axis in the i^{th} dimension

Input Format

The first line contains an integer t, the number of test cases.

Each of the next t sets of lines is as follows:

- The first line contains two space-separated integers, n and m.
- The next line contains n space-separated integers $x[i]$.
- The third line of each test contains n space-separated integers $D[i]$.

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 one line for each test case. Since the answer can be really huge, output it modulo $10^9 + 7$.

Sample Input

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

Sample Output

```
12
```

Explanation

We are 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:

$$
\begin{aligned}
&(1,1) \to (1,2) \to (1,1) \to (1,2) \\
&(1,1) \to (1,2) \to (1,1) \to (2,1) \\
&(1,1) \to (1,2) \to (1,3) \to (1,2) \\
&(1,1) \to (1,2) \to (1,3) \to (2,3) \\
&(1,1) \to (1,2) \to (2,2) \to (1,2) \\
&(1,1) \to (1,2) \to (2,2) \to (2,1) \\
&(1,1) \to (1,2) \to (2,2) \to (2,3) \\
&(1,1) \to (2,1) \to (1,1) \to (1,2) \\
&(1,1) \to (2,1) \to (1,1) \to (2,1) \\
&(1,1) \to (2,1) \to (2,2) \to (2,1) \\
&(1,1) \to (2,1) \to (2,2) \to (1,2) \\
&(1,1) \to (2,1) \to (2,2) \to (2,3)
\end{aligned}
$$

$$12 \mod (10^9 + 7) = 12$$