Problem B. Mathematical Equations

Input file: `standard input`
Output file: `standard output`

Your Friend has 3 arrays A, B, and R (1-based) of the same length n.

Let's describe function $F(i, j)$ as $\sum_{k=0}^{j} A_{i-k} * (j - k + 1)$

He gave you 2 array A and R (It is granted that $(1 \leq R_i \leq i)$)

and asked you evaluate $\sum_{i=1}^{n} B_i \ MOD \ 10^9 + 7$

where $B_i = max(F(i, j))$ for every j where $(0 \leq j < R_i)$

Input

The first line will contain T $(1 \leq T \leq 100)$ the number of test cases.

Each test case will be represented in 3 lines.

First line will contain N.

The next line will contain n integers A_i $(-10^6 \leq A_i \leq 10^6)$

The last line will contain n integers R_i $(1 \leq R_i \leq i)$

Output

Print a single integer that represents answer.

Scoring

Sub task #1 (20 points): $(1 \leq N \leq 100)$

Sub task #2 (30 points): $(1 \leq N \leq 1000)$

Sub task #3 (50 points): $(1 \leq N \leq 10000)$

Example

standard input	standard output
3 3 4 2 5 1 2 2 5 3 -1 2 -4 20 1 2 2 4 3 4 2 -100 7 4 1 2 3 4	24 57 999999931