Find the Seed

A company needs random numbers for its operation. N random numbers have been generated using N numbers as seeds and the following recurrence formula:

$$F(K) = (C(1) \times F(K-1) + C(2) \times F(K-2) + \cdots + C(N-1) \times F(K-N+1) + C(N) \times F(K-N)) \ \% \ (10^9 + 7)$$

The numbers used as seeds are $F(N-1), F(N-2), \ldots, F(1), F(0)$. $F(K)$ is the K^{th} term of the recurrence.

Due to a failure on the servers, the company lost its seed numbers. Now they just have the recurrence formula and the previously generated N random numbers.

The company wants to recover the numbers used as seeds, so they have hired you for doing this task.

Input Format

The first line contains two space-separated integers, N and K, respectively.
The second line contains the space-separated integers describing
$F(K), F(K-1), \ldots, F(K-N+2), F(K-N+1)$ (all these numbers are non-negative integers $< 10^9$).
The third line contains the space-separated coefficients of the recurrence formula,
$C(1), C(2), \ldots, C(N-1), C(N)$. All of these coefficients are positive integers $< 10^9$.

Constraints

- $1 \leq N \leq 50$
- $1 \leq K \leq 10^9$
- $0 \leq K - N + 1$

Output Format

The output must be one line containing the space-separated seeds of the random numbers -
$F(N-1), F(N-2), \ldots, F(1), F(0)$.

Sample Input

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2 6
13 8
1 1
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Sample Output

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1 1
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Explanation

This is the classic Fibonacci recurrence. We have the 6^{th} and 5^{th} terms, and, of course, the seeds are the numbers 1 and 1.