

Find the Seed

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

The recurrence formula is the following:

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

The numbers used as seeds are $F(N - 1), F(N - 2), \dots, F(1), F(0)$. $F(K)$ 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 N and K . Two lines follow.
The first contains the numbers $F(K), F(K - 1), \dots, F(K - N + 2), F(K - N + 1)$, generated in one line, all these numbers are non-negative integers lower than 10^9 .
The second contains the coefficients of the recurrence formula $C(1), C(2), \dots, C(N - 1), C(N)$ in one line, all coefficients are positive integers lower than 10^9 .

Constraints

$$\begin{aligned} 1 &\leq N \leq 50 \\ 1 &\leq K \leq 10^9 \\ 0 &\leq K - N + 1 \end{aligned}$$

Output format

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

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 6th and 5th terms, and, of course, the seeds are the numbers 1 and 1.