Problem F. Forever Young

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	1024 mebibytes

Little Misha plays with infinite arrays which consist of nonnegative integers. Let us call such an array *good* if it is non-increasing.

In one step, Misha can increase or decrease one number in a good array by 1, if the array will remain good after this operation as well.

Initially, Misha had an array A. Misha made k steps and obtained an array B. In how many ways he could have obtained it?

Input

The first line contains a single integer n ($0 \le n \le 60$): the number of nonzero elements in A. The second line contains n integers separated by spaces: $60 \ge a_1 \ge a_2 \ge \cdots \ge a_n > 0$, the elements themselves. All other elements of A are zeroes.

The next two lines contain a description of B in the same format.

Additionally, it is guaranteed that $0 \le \sum a_i \le 60$ and $0 \le \sum b_i \le 60$.

The last line contains the only integer k ($0 \le k \le 10^6$).

Output

Print the desired number of ways modulo prime number 998 244 353.

Examples

standard input	*standard output*
3 3 2 1 3 3 2 1 2	7
3 3 2 1 3 3 2 1 1111	0

Note

In the first sample, the ways are:
$\{3, 2, 1\} \to \{4, 2, 1\} \to \{3, 2, 1\}$,
$\{3, 2, 1\} \to \{3, 3, 1\} \to \{3, 2, 1\}$,
$\{3, 2, 1\} \to \{3, 2, 2\} \to \{3, 2, 1\}$,
$\{3, 2, 1\} \to \{3, 2, 1, 1\} \to \{3, 2, 1\}$,
$\{3, 2, 1\} \to \{2, 2, 1\} \to \{3, 2, 1\}$,
$\{3, 2, 1\} \to \{3, 1, 1\} \to \{3, 2, 1\}$,
$\{3, 2, 1\} \to \{3, 2\} \to \{3, 2, 1\}$.

In the second sample, it is impossible to obtain the second array from the first in 1111 steps.