

[Top \(/contests/abc436\)](#)

[Tasks \(/contests/abc436/tasks\)](#)

[Clarifications \(/contests/abc436/clarifications\)](#)

[Results ▾](#)

[Standings \(/contests/abc436/standings\)](#)

[Virtual Standings \(/contests/abc436/standings/virtual\)](#)

[Editorial \(/contests/abc436/editorial\)](#)

[Discuss \(<https://codeforces.com/blog/entry/149183>\)](#)



[日本語](#) / [English](#)

G - Linear Inequation

[Editorial \(/contests/abc436/tasks/abc436_g/editorial\)](#)

Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 600 points

Problem Statement

You are given a length- N sequence of positive integers $A = (A_1, A_2, \dots, A_N)$ and a positive integer M .

Find the number of length- N sequences of non-negative integers $x = (x_1, x_2, \dots, x_N)$ that satisfy the following condition:

$$\bullet \sum_{i=1}^N A_i x_i \leq M$$

The number can be very large, so find it modulo 998244353.

Constraints

- $1 \leq N \leq 100$
- $1 \leq A_i \leq 100$ ($1 \leq i \leq N$)
- $1 \leq M \leq 10^{18}$
- All input values are integers.

Input

The input is given from Standard Input in the following format:

```
N M
A1 A2 ... AN
```

Output

Print the number, modulo 998244353, of non-negative integer sequences that satisfy the condition.

Sample Input 1

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```
4 6
5 4 3 2
```

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Sample Output 1

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10

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The sequences x that satisfy the condition are the following 10:

(0, 0, 0, 0), (0, 0, 0, 1), (0, 0, 0, 2), (0, 0, 0, 3), (0, 0, 1, 0), (0, 0, 1, 1), (0, 0, 2, 0), (0, 1, 0, 0), (0, 1, 0, 1), (1, 0, 0, 0)

Thus, print 10.

Sample Input 2

Copy

6 89

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4 7 5 10 7 6

Sample Output 2

Copy

38469

Copy

Sample Input 3

Copy

1 1000000007

Copy

1

Sample Output 3

Copy

1755655

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There are 1000000008 sequences x that satisfy the condition.

Print this modulo 998244353, which is 1755655.

Sample Input 4

Copy

20 738894495848985641

Copy

40 58 13 24 65 11 63 29 98 75 40 77 15 50 83 85 35 46 38 37

Sample Output 4

Copy

31156940

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