

Math Ball

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 512 megabytes

Cake has n types of balls numbered from 1 to n , the i -th type of which has a sufficient number of indistinguishable balls and a cost c_i . Cake wants to take away some of them, but his backpack can only carry at most W balls. Simple knapsack problem cannot please Cake, so he wants to add some magic to the balls. Formally, if he takes k_i balls from the i -th type, the cost is $C = k_1^{c_1} k_2^{c_2} \dots k_n^{c_n}$. We want to know for all possible plans taking at most W balls, what the total cost modulo 998244353 is.

Input

First line contains two integers n and W , and the second line contains n integers c_1, c_2, \dots, c_n , separated by space.

It is guaranteed that $n \leq 10^5$, $W \leq 10^{18}$, and $\sum c_i \leq 10^5$.

Output

Print the total cost modulo 998244353.

Example

standard input	standard output
4 5 1 2 3 4	31

Note

For the sample input, plans (k_1, k_2, k_3, k_4) with non-zero costs are $(1, 1, 1, 2)$, $(1, 1, 2, 1)$, $(1, 2, 1, 1)$, $(2, 1, 1, 1)$, and $(1, 1, 1, 1)$, and the total cost is $2^4 + 2^3 + 2^2 + 2^1 + 1 = 31$.