Problem A. Substrings and Subsequences

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	256 megabytes

Vasya got tired of confusion between substrings and subsequences. So he wants to know what is the probability for a randomly generated string s that the set of all its different subsequences equals to the set of all its different substrings.

Vasya generates strings in the following way: each of n characters is generated independently from the same distribution. Probability that i-th character of the string equals to j-th letter of English alphabet is equal to

$$\frac{w_j}{\sum_{k=1}^{m} w_k}.$$

Input

The first line of the input contains integer T ($1 \le T \le 1000$) — the number of testcases.

Description of each test case consists of two lines. The first line contains two integers n and m ($1 \le n \le 10^9, 1 \le m \le 26$) — the number of characters in the string and the number of letters used to generate strings.

The second line of each test case contains m integers w_i ($1 \le w_i, \sum_{i=1}^{m} w_i \le 10^9$).

Output

If the answer for i-th testcase equals irreducible fraction $\frac{P}{Q}$, then print $P \cdot Q^{-1} \bmod (10^9+7)$. Print answers for different testcases in separate lines.

Examples

standard input	standard output
3 3 1 5 2 5 1 2 3 4 5 5 5 1 2 3 4 5	1 1 819476549