

American Truck Simulator 2

Input file: *standard input*
Output file: *standard output*
Time limit: 4 seconds
Memory limit: 2048 MB

Welcome to America!

You are a truck driver traveling across the country, and today you have an important delivery to make. Your destination is exactly N miles away from your starting point.

Your truck starts at mile 0 with an empty tank. Along the road, there is a gas station at every mile.

Whenever your tank is empty, you can choose one of M available refill options: $x_1, x_2, \dots, x_M$.

If you choose a refill of X miles, your truck can travel exactly X miles before the tank becomes empty again. You cannot stop to refuel while there is still fuel in the tank.

For safety reasons, the delivery is considered complete only when the truck reaches mile N **with an empty tank**. In other words, the final refill must be completely used up exactly at the destination.

As a result, your entire journey is determined by the sequence of refill amounts you choose. To complete the delivery, the sum of all chosen refill amounts must be exactly N .

Two journeys $x_1, x_2, \dots, x_i$ and $y_1, y_2, \dots, y_j$ are considered different if $i \neq j$ or there is at least one position k such that $x_k \neq y_k$.

To make things a little more realistic, every refill amount is a multiple of 20 miles.

Your task is to determine the number of different journeys that complete the delivery.

Since the answer can be very large, output it modulo 99999989.

Input

The first line contains a single integer T ($1 \leq T \leq 10$) — the number of test cases.

Each test case consists of two lines.

The first line contains two integers N ($1 \leq N \leq 10^{62}$) and M ($1 \leq M \leq 50$) — the distance to the destination and the number of available refill options while the second line contains M distinct integers $x_1, x_2, \dots, x_M$ ($20 \leq x_i \leq 1000$, x_k divisible by 20 for all $k \in [1, M]$ and there exists k such that $x_k = 20$) representing the available refill amounts.

Output

For each test case, output a single integer — the number of different journeys that complete the delivery, modulo 99999989.

Example

standard input	standard output
2	5
80 2	3
20 40	
200 2	
20 180	

Explanation

For the first test in the example, if $N = 80$ and the available refill amounts are 20 and 40, there are four possible journeys:

- 20, 20, 20, 20
- 20, 20, 40
- 20, 40, 20
- 40, 20, 20
- 40, 40

Therefore, the answer is 5.