Shell Sort

Input file:	`standard input`
Output file:	`standard output`
Time limit:	5 seconds
Memory limit:	1024 megabytes

Shell sort is an excellent sorting algorithm, which can be regarded as a kind of group insertion sort. Next, we will briefly introduce this algorithm:

Assume we need to sort an array $A_{0\ldots n-1}$ of length n in ascending order. First, we need to determine an integer m and a decreasing sequence d of length m with the last number being 1 as the step sequence, and then perform m rounds of operations.

For the i-th round of operation, let $t = d_i$, and then consider dividing A into as evenly as possible t groups. Specifically, we choose to group those positions that have the same modulo t, and then perform insertion sort within each group.

```
void insert_sort(vector<int> &v) {
        int n = v.size();
        for (int i = 0; i < n; i++) {
                for (int j = i; j && v[j] < v[j - 1]; j--){
                        swap(v[j], v[j - 1]);
                        swap_count++;
                }
        }
}

void work() {
        for (int i = 0; i < t; i++) {
                vector<int> v;
                for (int j = i; j < n; j += t) v.push_back(A[j]);
                insert_sort(v);
                for (int j = i, k = 0; j < n; j += t, k++) A[j] = v[k];
        }
}

void shell_sort() {
        swap_count = 0;
        for (int i = 1; i <= m; i++) {
                t = d[i];
                work();
        }
}
```

The `work` function represents one round of operation with parameter $t = d[i]$.

Given two integers n, m, and a step sequence d of length m, you need to calculate the maximum number of array element swaps, that is, the maximum value of the variable `swap_count`, after running the `shell_sort` function for all permutations of lengths n. Also, you need to give the number of permutations that can achieve this maximum value.

The answers need to be modulo $10^9 + 7$.

Input

The first line of the input contains two integers n and m ($2 \le n \le 30$, $1 \le m \le 10$).

The second line of the input contains m integers, where the i-th integer represents d_i. It is guaranteed

that $1 \leq d_i \leq 10$, $d_m = 1$, and $d_i > d_{i+1}$ for all $1 \leq i \leq m-1$.

Output

Output a single line contains two integers, representing the maximum number of swaps and the number of permutations that achieve this maximum number of swaps, respectively. The answers need to be modulo $10^9 + 7$.

Example

standard input	standard output
5 2 2 1	7 2