You are given a set of N integers. You can take K different elements from them to make a group. Two groups will be different if there is at least one element which is not common to both. For example, if there are 4 elements a, b, c, d and you are asked to take two elements then ab, ad, bc, cd are all valid and different groups. A grouping system is complete if for a particular K, number of different groups is the maximum. In the former case, {ab, bc, cd, bd, ad, ac} is a complete grouping system.

For a particular complete grouping system, the **fitness** is calculated in the following way

1. Each group of a grouping system contributes a part the multiplication of all numbers of that group
2. Contribution from all groups are added
3. The fitness is equivalent to *Total Contribution* mod M, M is the bounding parameter

In our example, for $K = 2$, the fitness is $F_2 = (ab + bc + cd + bd + ad + ac) \bmod M$. If $K = 1$, then fitness is $F_1 = (a + b + c + d) \bmod M$.

Here, in this problem you have to find the complete grouping system with maximum fitness.

Input

Each test case starts with two positive integer N ($2 \leq N \leq 1000$) and M ($1 \leq M < 2^{31}$). In next few lines there will be N positive integers. Each integer will be at best 1000. Input will be terminated by a case where $N = M = 0$.

Output

For each test case, print in a line the maximum fitness possible for a grouping system.

Sample Input

```
4 10
1 2 3 4
4 100
1 2 3 4
4 6
1 2 3 4
0 0
```

Sample Output

```
5
50
5
```