Problem H - Tomato's Criterion

(The problem description is exactly the same as problem B except the last paragraph.)

Dreamoon loves to solve problems. He even sets a simple criterion to evaluate the difficulty of problems: If he spent more than t minutes to solve a problem, then this problem is considered *hard*. Otherwise, the problem is considered *easy*.

Little Tomato had set up n problems, and asked Dreamoon for help to test whether these problems are easy or hard. He picked out some problems among them, and asked Dreamoon to solve them one after another. However, he noticed that Dreamoon would get tired after solving each problem.

Let's define a *tiredness value* v, and a *tiredness gap* k. Before Dreamoon solved the first problem, the tiredness value $v = 0$. Whenever he solved one problem, the tiredness value is increased by a tiredness gap k immediately. That is, $v \leftarrow v + k$ after each problem is solved.

Now Little Tomato has estimated the time $a_1, a_2, \cdots, a_n$ that Dreamoon would need to solve for each problem, assuming it is the first problem for Dreamoon to solve. Then Dreamoon would need $a_i + v$ minutes to solve for problem i with tiredness value v.

For example, if there are five problems with estimated solving time $7, 3, 6, 8, 5$, and tiredness gap $k = 2$, difficulty threshold $t = 9$. Then by asking Dreamoon to solve the third, second and fourth problem, he will finish in $6, 5, 12$ minutes respectively, and those problem will be considered as easy, easy and hard respectively.

Little Tomato wondered at most how many problems that Dreamoon will consider as easy, under the different settings of tiredness gap k?

Input

The first line contains an integer T ($1 \leq T \leq 100$), indicating the number of test cases.

For each test case, the first line contains two integers n, t ($1 \leq n \leq 100000; 1 \leq t \leq 10^9$), followed by n positive integers $a_1, a_2, \cdots, a_n$ ($1 \leq a_i \leq 10^9$) on the next line.

The third line contains an integer Q ($1 \leq Q \leq 100000$), denoting the number of queries. For each of the next Q lines, there is an integer k ($1 \leq k \leq 10^9$).

The input file will be at most 10MB.

Output

For each query, please output the maximum number of problems that can be declared easy by Dreamoon in a line.

Sample Input

```
1
5 9
7 3 6 8 5
2
2
3
```

Sample Output

```
4
3
```