

Relearn through Review

Input file: **standard input**
Output file: **standard output**
Time limit: **3 seconds**
Memory limit: **1024 megabytes**

Given an integer sequence a_1, a_2, \dots, a_n of length n and a non-negative integer k , you can perform the following operation at most once: Choose two integers l and r such that $1 \leq l \leq r \leq n$, then for each $l \leq i \leq r$, change a_i into $(a_i + k)$.

Maximize the greatest common divisor of the whole sequence.

An integer g is said to be the common divisor of the whole sequence, if a_i is divisible by g for all $1 \leq i \leq n$.

Input

There are multiple test cases. The first line of the input contains an integer T indicating the number of test cases. For each test case:

The first line contains two integers n and k ($1 \leq n \leq 3 \times 10^5$, $0 \leq k \leq 10^{18}$).

The second line contains n integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 10^{18}$) indicating the sequence.

It's guaranteed that the sum of n of all test cases does not exceed 3×10^5 .

Output

For each test case output one line containing one integer indicating the maximum greatest common divisor of the whole sequence.

Example

standard input	standard output
2	5
6 2	3
5 3 13 8 10 555	
3 0	
3 6 9	

Note

For the first sample test case, choose $l = 2$ and $r = 4$. The sequence will become $\{5, 5, 15, 10, 10, 555\}$. Its greatest common divisor is 5.