Easy GCD

HackerRank

We call a sequence of n non-negative integers, A, *awesome* if there exists some positive integer $x > 1$ such that each element a_i in A (where $0 \le i < n$) is *evenly divisible* by x. Recall that a evenly divides b if there exists some integer c such that $b = a \cdot c$.

Given an awesome sequence, A, and a positive integer, k, find and print the maximum integer, l, satisfying the following conditions:

1. $0 \le l \le k$
2. $A \cup \{l\}$ is also awesome.

Input Format

The first line contains two space-separated positive integers, n (the length of sequence A) and k (the upper bound on answer l), respectively.
The second line contains n space-separated positive integers describing the respective elements in sequence A (i.e., $a_0, a_1, \ldots, a_{n-1}$).

Constraints

- $1 \le n \le 10^5$
- $1 \le k \le 10^9$
- $1 \le a_i \le 10^9$

Output Format

Print a single, non-negative integer denoting the value of l (i.e., the maximum integer $\le k$ such that $A \cup \{l\}$ is awesome). As 0 is evenly divisible by any $x > 1$, the answer will always exist.

Sample Input 0

```
3 5
2 6 4
```

Sample Output 0

```
4
```

Explanation 0

The only common positive divisor of 2, 6, and 4 that is > 1 is 2, and we need to find l such that $0 \le l \le 5$. We know $l \ne 5$ because $x = 2$ would not evenly divide 5. When we look at the next possible value, $l = 4$, we find that this is valid because it's evenly divisible by our x value. Thus, we print 4.

Sample Input 1

```
1 5
7
```

Sample Output 1

```
0
```

Explanation 1

Being prime, 7 is the only possible value of $x > 1$. The only possible l such that $0 \leq l \leq 5$ is 0 (recall that $\frac{0}{7} = 0$), so we print 0 as our answer.