

Waiter

You are a waiter at a party. There are N stacked plates. Each plate has a number written on it. You start picking up the plates from the top one by one and check whether the number written on the plate is divisible by P (a prime). The starting value of P is 2 . If the number is divisible, you stack that plate separately with other P divisible plates. If not, you stack that plate separately with the other plates that are not divisible by P .

In the next iteration, the value of P changes to the next prime number after P . You check the plates from the pile that were not divisible by P in the last iteration. You repeat this process a number of times. By doing this process Q times, you end up getting different piles of plates. The plates that are not divisible by the Q^{th} prime (which is our last iteration), from the last pile of plates. Say you have M (it is clear that M is either Q or $Q+1$) different piles of plates. Starting from the first pile, print the number written on the plate while removing plates from a pile in the same order as described above. Do this process for all the M piles. Print one value in a single line.

Input Format

The first line contains two space separated integers, N and Q .
The next line contains N space separated integers representing the initial pile of plates. The leftmost value represents the bottom plate of the pile.

Constraints

$1 \leq N \leq 5 \times 10^4$
 $2 \leq \text{number}_i \leq 10^4$
 $1 \leq Q \leq 1200$

Output Format

Output N lines. Each line contains a number written on the plate. Printing should be done in the order defined above.

Sample Input

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5 1
3 4 7 6 5
```

Sample Output

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4
6
3
7
5
```

Explanation

As Q is 1 , we can have a maximum of 2 piles. In this case, we will have 2 piles. The first pile (for $P=2$) will be $[4, 6]$ and the second pile will be $[3, 7, 5]$.

Note: Writing left to right represents the top to bottom arrangement of a pile.

So, we will print them in the order $4,6,3,7,5$.

