

You are a waiter at a party. There are  $N$  stacked plates on pile  $A_0$ . Each plate has a number written on it. Then there will be  $Q$  iterations. In  $i$ -th iteration, you start picking up the plates in  $A_{i-1}$  from the top one by one and check whether the number written on the plate is divisible by the  $i$ -th prime. If the number is divisible, you stack that plate on pile  $B_i$ . Otherwise, you stack that plate on pile  $A_i$ . After  $Q$  iterations, plates can only be on pile  $B_1, B_2, \dots, B_Q, A_Q$ . Output numbers on these plates from top to bottom of each piles in order of  $B_1, B_2, \dots, B_Q, A_Q$ .

## 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, i.e.,  $A_0$ . 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

```
5 1
3 4 7 6 5
```

## Sample Output

```
4
6
3
7
5
```

## Explanation

Initially:

$$A_0 = [3, 4, 7, 6, 5] \leftarrow \text{TOP}$$

After 1 iteration:

$$A_0 = [] \leftarrow \text{TOP}$$

$$B_1 = [6, 4] \leftarrow \text{TOP}$$

$$A_1 = [5, 7, 3] \leftarrow \text{TOP}$$

We should output numbers in  $B_1$  first from top to bottom, and then output numbers in  $A_1$  from top to bottom.