Pyramid

task: `pyramid`	input file: `stdin`	output file: `stdout`
points: `100`	time limit: `2000 ms`	memory limit: `1 GB`

Archaeologists have just deciphered hieroglyphs on walls of a pyramid. The writings on one of the walls describe N sacred numbers. All numbers which are divisible by at least one of these numbers are also sacred.

The writings on M other walls claim that the Q_i-th lowest sacred number has magic properties. The archaeologists would like to know which numbers have the magic properties. Could you help them with that?

Task

You are given N positive integers $A_1, A_2, \ldots, A_N$ and M positive integers $Q_1, Q_2, \ldots, Q_M$. For each $i \in \{1, 2, \ldots, M\}$ find the Q_i-th lowest positive integer which is divisible by at least one of the integers $A_1, A_2, \ldots, A_N$.

Input

The first line of the input contains two integers N a M. The second line contains space-separated integers A_1, A_2, …, A_N. Then, M lines follow. Each of them contains an integer Q_i.

It holds $1 \leq N \leq 15$ and $1 \leq M \leq 50$.
For all $i \in \{1, 2, \ldots, N\}$ it holds $2 \leq A_i \leq 10^{18}$.
For the product of these numbers it holds $A_1 \cdot A_2 \cdot \ldots \cdot A_N \leq 10^{18}$.
For all $i \in \{1, 2, \ldots, M\}$ it holds $1 \leq Q_i \leq 10^{18}$.
Each number on the output is lower than or equal to 10^{18}.
Furthermore, in 10 % of the testcases $Q_1, Q_2, \ldots, Q_M \leq 10^6$.
Furthermore, in 30 % of the testcases $N \leq 2$.

Output

Output M lines. The i-th line should contain the Q_i-th lowest positive integer which is divisible by at least one of the integers $A_1, A_2, \ldots, A_N$.

Sample

input

```
5 5
2 5 7 10 11
1
2
3
10
20
```

output

```
2
4
5
14
28
```

input

```
2 1
70 100
5
```

output

```
210
```