

## H Cookie Baking

Devon, a dedicated member of the culinary staff at TJ IOI Inc., has made cookies for Kevin's birthday! However, smelling the aroma of chocolate chips coming from the kitchen, Alex devises a plot to bring cookies to him and his fellow employees.

Devon has  $N$  large piles of cookies ( $1 \leq N \leq 100,000$ ) on the kitchen counter, where the  $i^{th}$  pile ( $1 \leq i \leq N$ ) contains  $a_i$  cookies ( $1 \leq a_i \leq 1,000,000$ ). Alex, on the other hand, wants to steal his cookies, but he brings along a different number of employees each time.

When he steals cookies, he wants to make sure he is able to split the cookies evenly among him and his  $X - 1$  employees ( $X$  people total). Alex always chooses  $X$  to be prime, because he likes prime numbers. Since the kitchen door is located next to cookie pile 1, Alex wants to take cookies from the first possible pile (i.e. the minimum value of  $i$ ), such that he can split the pile's cookies amongst  $X$  people evenly.

Since Devon is a very efficient chef, whenever Alex takes cookies from a pile, he is able to restock the pile with exactly the same number of cookies. This means that the sizes of the cookie piles effectively do not change. Whenever Alex arrives, help him determine the best pile to take cookies from.

### INPUT FORMAT:

The first line contains  $N$  and  $Q$  ( $1 \leq Q \leq 100,000$ ). The second line contains  $N$  integers representing  $a_i$ . The next  $Q$  lines contains queries. Each of these lines consists of one integer  $X$  ( $1 \leq X \leq 1,000,000$ ), where  $X$  is prime.

### OUTPUT FORMAT:

For each query, output the minimum  $i$  such that  $X$  divides  $a_i$ , or output  $-1$  if no such  $a_i$  exists.

**SHORT NAME:** cookie

### SAMPLE INPUT:

```
5 6
2 15 49 11 17
3
7
2
3
13
5
```

### SAMPLE OUTPUT:

```
2
3
1
2
-1
2
```