

# Multiplicity

based on a problem by Goran Žužić

Emma is studying numbers once again. Given a list of  $K$  positive integers  $X_1, X_2, \dots, X_K$  that she refers to as “bases”, Emma wants to count how many integer multiples of those bases fall within a certain interval. The numbers might be repeated, in which case Emma wants to count all the multiples with the corresponding multiplicity. For example, considering three bases, 2, 3, 2, Emma determines that the interval  $[0, 5]$  contains 8 multiples, since 0 counts as a triple multiple (for all three bases), 2 counts as a double multiple (for 2 and 2) and so does 4, and 3 counts as a single multiple (of base 3), and 1 and 5 count zero, since they are not the multiples of any base. So, 3 multiples in 0, plus 2 in 2, plus 1 in 3, plus 2 in 4, makes a total of 8 multiples. Write a program to count multiples in ranges from 0 or above, and extending up to  $N$ .

## Input

The first input line contains two numbers,  $N$  and  $K$ , with  $1 \leq N \leq 1000$  and  $1 \leq K \leq 1000$ . The second line contains the  $K$  base integers  $X_1, X_2, \dots, X_K$ , with  $1 \leq X_i < N$ . The third line contains the number of queries  $Q$  posed by Emma, with  $1 \leq Q \leq 1000$ . The following  $Q$  lines contain two integers each,  $L_j$  and  $R_j$ , indicating the range  $[L_j, R_j]$ , with  $0 \leq L_j \leq R_j < N$ .

## Output

For each range  $[L_j, R_j]$ , output a line containing the number of multiples of the given bases in that range, extremes included.

### Sample input 1

```
10 4
1 1 2 1
3
0 9
2 6
7 7
```

### Sample output 1

```
35
18
3
```

### Sample input 2

```
11 3
3 7 10
3
0 10
2 6
7 7
```

### Sample output 2

```
8
2
1
```

## Limits

Time limit is 2 second.

Memory limit is 256 megabytes.