Query

You will be given an array of n elements. Also you will be given Q queries.

In each query, you will be given two integers, which denotes a range of your given array.

In reply to the query, you have to calculate the number of primes in the range from *l'th* to *r'th* index of the given array.

Let me explain with an example.

Let the given array is ***a*** and ***a*** = {2, 6, 3, 5, 4, 3}.

Now, if you have a query to calculate the number of primes in the range from 2 to 5, then the answer will be 2 and the primes are 3 (in index 3) and 5(in index 4).

Input:

In the first line, you will be given two integers, n and q.

In the next line, you will be given n integers a_1, a_2, a_3…a_n, the elements of the array.

In the next q lines, you will be given two integers, l and r.

Constraint:

$1 <= n, q <= 10^5$

$1 <= l, r <= n$

$1 <= a_i <= 1000$ for all i in range 1 to n.

Output:

For each query, print an integer, the number of primes in the range from l to r in a new line.

Sample Input:

6 6

2 4 5 7 9 11

1 3

2 4

1 4

3 6

4 6

2 5

Sample Output:

2

2

3

3

2

2

Explanation:

For the first query, there are two primes from 1st to 3rd index, they are 2 and 5.