Vampire and his Holy Numbers

Recently while playing cricket, vampire got frustrated and went on a mission to "Networking Land" to find peace. There, he came across a number of islands arranged in a row.

Each island had a holy number associated with it.The holy number of a range of consecutive islands was the maximum number that could divide holy numbers of all of the islands in that range. Vampire has a number of queries where he needs to find the holy number of some range of islands. Help him do so.

Input

The first line contains **n** and **q**, the number of islands and the number of queries. the next line contains **n** integers denoting the holy number of all the islands. this is followed by **q** lines, each line contains 2 integers **l,r**.You need to output the holy value of the range **l,r**.

Output

The output should contain **q** lines, each denoting the answer to each query.

Example

Input:

5 5

2 4 6 9 18

1 1

1 3

3 4

3 5

4 5

Output:

2

2

3

3

9

Constraints

q <= 10000

n <= 100000

holy numbers <= 1000000000