Problem I

Greatest of the Greatest Common Divisors

Time Limit: 4 seconds

You are given a sequence of integers and a number of intervals in the sequence. The intervals are specified by their leftmost and rightmost positions. An interval consisting of k integers has $k(k-1)/2$ pairs of integers at different positions, which have their greatest common divisors. For each given interval, find the greatest one among such greatest common divisors.

For example, when the sequence is $(a_1, \ldots, a_6) = (10, 20, 30, 40, 50, 60)$, and the whole sequence is specified as the interval, the following 15 pairs of two integers at different positions x and y, and their greatest common divisors should be considered.

x	1	1	1	1	1	2	2	2	2	3	3	**3**	4	4	5
y	2	3	4	5	6	3	4	5	6	4	5	**6**	5	6	6
a_x	10	10	10	10	10	20	20	20	20	30	30	**30**	40	40	50
a_y	20	30	40	50	60	30	40	50	60	40	50	**60**	50	60	60
$\gcd(a_x, a_y)$	10	10	10	10	10	10	20	10	20	10	10	**30**	10	20	10

The greatest of the greatest common divisors of the 15 pairs is $\gcd(30, 60) = 30$, in this case.

Input

The input consists of a single test case of the following format.

n
$a_1 \cdots a_n$
q
$l_1\ r_1$
$\vdots$
$l_q\ r_q$

The first line contains an integer n, which is the number of integers in the given sequence, satisfying $2 \leq n \leq 10^5$. The second line contains n positive integers a_1 through a_n, specifying the sequence. None of them exceeds 10^5.

The third line contains a positive integer q, specifying the number of intervals in the sequence to be considered, which does not exceed 10^5. It is followed by q lines, each specifying an interval in the sequence to be considered. The i-th line of them has two integers, l_i and r_i $(1 \leq l_i < r_i \leq n)$, specifying the interval a_{l_i} through a_{r_i} in the sequence.

Output

Output q lines, the i-th line of which should have the greatest of the greatest common divisors of all pairs in the interval specified by l_i and r_i.

Sample Input 1	Sample Output 1
6 10 20 30 40 50 60 3 1 6 2 5 4 5	30 20 10

Sample Input 2	Sample Output 2
10 13 2 35 4 13 2 5 1 7 4 5 1 4 4 10 3 8 3 9 1 10	2 4 5 7 13