Yes || !

Input file:	`standard input`
Output file:	`standard output`
Time limit:	4 second
Memory limit:	256 mebibytes

You are given an array A of N positive integers indexed from 1 to N and Q queries on the array. For i'th query you are given two integers L_i and R_i, where $1 \le L_i \le R_i \le N$. You have to determine whether the sequence $[A_{L_i}, A_{L_i+1}, ..., A_{R_i}]$ is an arithmetic/geometric sequence or not. See the note section for the definition of arithmetic and geometric sequence.

Input

First line contains an integer, N - number of elements of array A. The next line contains N positive integers - elements of the array. The third line contains an integer, Q - number of queries. Then there will be Q lines i'th of which contains two integers L_i and R_i respectively.

Output

For i'th query print a line containing "Yes" (without quotes) if the sequence $[A_{L_i}, A_{L_i+1}, ..., A_{R_i}]$ is an arithmetic or geometric sequence. Otherwise print "No" (without quotes).

Scoring

- Subtask 1 (19 Points): $1 \le N \le 10^3$, $1 \le Q \le 10^3$, $1 \le A_i \le 10^9$.
- Subtask 2 (81 Points): $1 \le N \le 10^6$, $1 \le Q \le 10^6$, $1 \le A_i \le 10^9$.

Example

standard input	standard output
10	Yes
2 6 9 12 24 48 53 58 63 68	No
5	No
3 3	Yes
5 10	Yes
3 7	
4 6	
5 6	

Note

- An arithmetic sequence is a sequence of numbers such that the difference of any two successive members is a constant.
  For example, the sequence 3, 8, 13, 18, ... is an arithmetic sequence with common difference 5. But 3, 5, 3 is not an arithmetic sequence.

- A geometric sequence is a sequence of numbers where each term after the first is found by multiplying the previous one by a fixed, non-zero number called the common ratio. For example, the sequence 2, 6, 18, 54, ... is a geometric sequence with common ratio 3. Similarly 10, 5, 2.5, 1.25, ... is a geometric sequence with common ratio $\frac{1}{2}$.

Note that a sequence with a single element is both an arithmetic and a geometric sequence.