Problem A. Histogram Sequence

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	1024 megabytes

A histogram is a polygon made by aligning N adjacent rectangles that share a common base line. Each rectangle is called a *bar*. The i-th bar from the left has width 1 and height H_i.

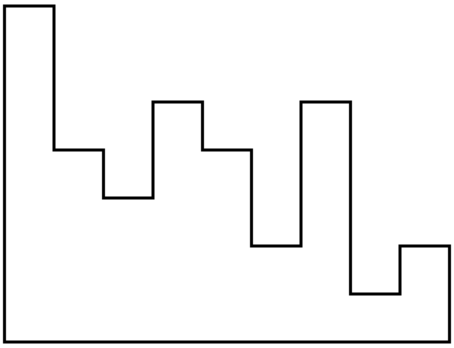

Figure: This picture depicts a case when $N = 9$ and $H = [7, 4, 3, 5, 4, 2, 5, 1, 2]$.

One day, you wanted to find the area of the largest rectangle contained in the given histogram. What you did was to make a list of integers A by the following procedure:

- For each $1 \le i \le j \le N$, calculate the largest area of the rectangle contained in the histogram, where the rectangle's base line coincides with the base line of the $i, i + 1, \cdots, j - 1, j$-th bar. Add the area to the list A.

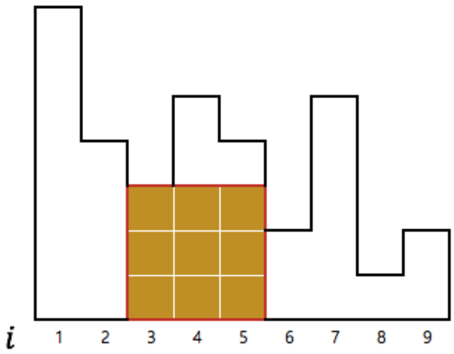

Figure: This picture depicts a case when $i = 3$ and $j = 5$. The area is 9.

The length of the list A is exactly $\frac{N(N+1)}{2}$ since you chose each pair (i, j) exactly once. To make your life easier, you sorted the list A in non-decreasing order. Now, to find the largest area of the rectangle contained in the histogram, you just need to read the last element of A, $A_{N(N+1)/2}$.

However, you are not satisfied with this at all, so I decided to let you compute some part of the list A. You have to write a program that, given two indices L and R ($L \le R$), calculate the values $A_{L..R}$, i.e. $A_L, A_{L+1}, \cdots, A_{R-1}, A_R$.

Input

The first line of the input contains an integer N ($1 \le N \le 300\,000$) which is the number of bars in the histogram.

The next line contains N space-separated positive integers $H_1, H_2, \cdots, H_N$ ($1 \le H_i \le 10^9$), where H_i is the height of the i-th bar.

The last line contains two integers L and R ($1 \le L \le R \le \frac{N(N+1)}{2}$, $R - L + 1 \le 300\,000$).

Output

Print $R - L + 1$ integers. The j-th ($1 \le j \le R - L + 1$) of them should be the $(L + j - 1)$-th element of the list A, i.e. A_{L+j-1}.

Example

standard input	standard output
9 7 4 3 5 4 2 5 1 2 42 45	12 12 14 15