

The Strange Function



One of the most important skills a programmer needs to learn early on is the ability to pose a problem in an abstract way. This skill is important not just for researchers but also in applied fields like software engineering and web development.

You are able to solve most of a problem, except for one last subproblem, which you have posed in an abstract way as follows: Given an array consisting of n integers $[a_1, a_2, \dots, a_n]$, define

$$f(l, r) = \gcd(a_l, a_{l+1}, \dots, a_r) \cdot \left(\left(\sum_{i=l}^r a_i \right) - \max(a_l, a_{l+1}, \dots, a_r) \right).$$

What is $\max_{1 \leq l \leq r \leq n} f(l, r)$, i.e., the maximum value of $f(l, r)$ among all subsegments $[l, r]$?

Complete the function `maximumValue` which takes an integer array as input and returns the maximum value of f among all subsegments $[l..r]$.

Note that:

- $\gcd(x, y) = \gcd(|x|, |y|)$
- $\gcd(x, 0) = \gcd(0, x) = |x|$

Input Format

The first line contains a single integer n .

The second line contains n space-separated integers a_1, a_2, \dots, a_n .

Constraints

- $1 \leq n \leq 50000$
- $-10^6 \leq a_i \leq 10^6$

Subtasks

For 15% of the total score:

- $1 \leq n \leq 1000$

Output Format

Print a single integer denoting the answer.

Sample Input 0

```
4
10 -5 5 20
```

Sample Output 0

```
50
```

Explanation 0

The maximum value occurs at $f(1, 4) = 50$ as shown below.

Input array = [10, -5, 5, 20]

(l, r)	GCD	Sum	Max	f (l, r)
(1, 1)	10	10	10	0
(1, 2)	5	5	10	-25
(1, 3)	5	10	10	0
(1, 4)	5	30	20	50
(2, 2)	5	-5	-5	0
(2, 3)	5	0	5	-25
(2, 4)	5	20	20	0
(3, 3)	5	5	5	0
(3, 4)	5	25	20	25
(4, 4)	20	20	20	0

Sample Input 1

5
7 12 24 6 5

Sample Output 1

144

Explanation 1

The maximum value occurs at $f(2, 3) = 144$.