

Cheap Tricks

time limit per test: 1 second (10 seconds for Python)

memory limit per test: 1 gigabyte

input: standard input

output: standard output

points: 100 · problem code: balancebeamlanding · author: Parsa

The MAPS executives, the president, vice president, and treasurer, are coordinating an Olympic artistic gymnastics showcase after a workshop. To plan the balance beam routine, they place marks $0, 1, \dots, n$ along the beam. Mark 0 is the start, and mark n is the finish.

For every destination mark i with $1 \leq i \leq n$, the judges assign a landing coefficient c_i .

A gymnast may move from any mark j to any destination mark i . The mark j may be before or after i , since a routine is allowed to change direction. Landing at i costs:

$$|j - i| \times c_i$$

Find the minimum total cost needed to reach mark n .

Input

The first line contains one integer n ($1 \leq n \leq 10^6$): the number of destination marks.

The second line contains n integers $c_1, c_2, \dots, c_n$ ($1 \leq c_i \leq 10^9$), where c_i is the landing coefficient of mark i .

Output

Print one integer: the minimum total cost.

Example 1

Input

```
3
5 4 5
```

Output

```
13
```

Example 2

Input

```
1
5
```

Output

```
5
```

Example 3

Input

```
4
1 1 1 1
```

Output

4

Example 4

Input

5
3 2 3 2 4

Output

12