DMPG '18 G2 - Gardening Fun

Bob is working on his biology assignment! He has N plants in a row and needs to water all of them today. Bob wants to water the i^{th} plant with v_i milliliters of water. He can spray exactly 1 milliliter of water onto each plant in a contiguous row of length i at a cost of $A \cdot i + B$ where A and B are given positive integers.

Bob is also okay with cutting some corners with his plant project. Specifically, say he ends up watering the i^{th} plant with w_i milliliters. Then he will consider $C \cdot ((w_1 - v_1)^2 + (w_2 - v_2)^2 + \ldots + (w_N - v_N)^2)$ as an additional cost, where C is some given positive integer.

Help Bob minimize the sum of these costs!

Constraints

For all subtasks,
$0 \leq A, B, C \leq 100$
$0 \leq v_i \leq 100$ for all $1 \leq i \leq N$

Subtask 1 [40%]

$1 \leq N \leq 2\ 000$

Subtask 2 [60%]

$1 \leq N \leq 200\ 000$

Input Specification

The first line contains a single integer N.
The next line contains three space-separated integers A, B, C in that order.
The final line contains N space-separated integers $v_1, v_2, \ldots, v_N$.

Output Specification

Output a single integer, the minimum possible sum of the costs.

Sample Input 1

```
5
1 9 8
1 1 0 1 1
```

Sample Output 1

```
22
```

Sample Input 2

```
8
1 2 100
2 2 0 1 0 1 1 1
```

Sample Output 2

```
16
```