Ada's Demo Album

Time Limit: 1 s
Mem Limit: 1048576 KB

Statistic 📊   Submit ✈

Description

Ada, a CSIE student, is also an amateur songwriter. She recently writes a wonderful song consisting of N bars. To make this song more popular, she decides to cooperate with a record label.

In order to obtain a recording contract, she has to prepare a demo and submit it to a record label in hopes of being invited to record a full-length album in a professional recording studio. However, as a CSIE sophomore tortured by exploding assignments, she has no time to record an additional demo. Instead, she would like to simply submit a snatch of her N-barred song as a demo. A snatch of a song is valid if both the two following conditions hold:

- It can be obtained by removing several (possibly zero) bars from the beginning and several (possibly zero) bars from the end.
- It consists of at least 2 bars.

Before making an official submission, she has done some surveys in order to pick and present the best snatch to the record label. With valuable feedbacks and a statistical transformation, for the i-th bar $(1 \leq i \leq N)$, its greatness can be specified with a value a_i. Note that though Ada's song is wonderful, a_i may be non-positive since a statistical transformation has been applied.

Fortunately, Ada also knows how a demo is rated in a record label. As humans are biased, the first impression and the ending of a demo may weigh differently in one's mind. More specifically, given x, y, z from the record label, if the ℓ-th bar, $(\ell + 1)$-th bar, . . ., and the r-th bar of the song are submitted as the demo, its rating will be

$$S = x \cdot a_\ell + y \cdot \sum_{k=\ell+1}^{r-1} a_k + z \cdot a_r$$

Please help Ada determine which snatch should be picked to achieve the maximal rating.

Input

The first line of the input contains 4 integers N, x, y, z, denoting the number of bars in the original song and the coefficients used in rating evaluation.

The second line of the input contains N space-separated integers $a_1, a_2, \ldots, a_N$, where the i-th integer denotes that greatness of the i-th bar.

- $2 \leq N \leq 2 \times 10^5$
- $1 \leq x, y, z \leq 10^4$
- $-10^9 \leq a_i \leq 10^9, \forall i = 1, 2, \ldots, N$

Test Group 0 (0%)

- Sample Input

Test Group 1 (10%)

- $N \leq 2000$

Test Group 2 (40%)

- $x = y = z$

Test Group 3 (50%)

- No Additional Constraint

Output

Please output an integer S indicating the maximal achievable rating.

Sample Input 1

```
6 1 1 1
-12 7 -127 -1 -2 -7
```

Sample Output 1

```
-3
```

Sample Input 2

```
8 59 4 87
0 8 -7 0 5 0 -2 9
```

Sample Output 2

```
1239
```

Sample Input 3

```
3 5358 5926 3141
1 10000 100000000
```

Sample Output 3

```
314159265358
```

Explanation

- In the first testcase, S achieves its maximum by taking $(\ell, r) = (4, 5)$, $S = 1 \cdot (-1) + 1 \cdot (-2) = -3$.
- In the second testcase, S achieves its maximum by taking $(\ell, r) = (2, 8)$, $S = 59 \cdot 8 + 4 \cdot ((-7) + 0 + 5 + (-2)) + 87 \cdot 9 = 1239$.
- In the third testcase, S achieves its maximum by taking $(\ell, r) = (1, 3)$, $S = 5358 \cdot 1 + 5926 \cdot 10^4 + 3141 \cdot 10^8 = 314159265358$.

Hint

Roses are red,

Violets are blue,

See the Test Group 2?

It's a déjà vu.

Test Groups

| #1 (10) | #2 (40) | #3 (50) |