

Maxsum

SEASON 8 – SECOND ROUND



While Ivo and Baltin were walking near the National Palace of Culture, they met two girls who had to write their homeworks in computer science. Since the boys are very good at solving problems, they decided to impress the girls by helping them. The homework was to solve the following task:

There is a sequence of numbers **(A[1], A[2], ..., A[N])** and its elements are arranged in a circle. We can apply the following operation - select 2 items and replace their locations. The number of times we can apply the described operation is unlimited.

The question in the task was to find the **maximum** possible value of the sum of the **products** of adjacent elements. Formally, we want to find what is the largest value of the following sum after applying the above operation:

$$\sum_{i=1}^N A[i] * A[(i \bmod N) + 1]$$

It turned out that Ivo and Baltin weren't able to solve the problem. They are now asking for help because they still want to impress the girls. Help them by writing a program that solves the homework.

Input

The first line of the input file `maxsum.in` contains one number **N** – the length of the sequence. The second line contains the sequence itself – **A[1], A[2], ..., A[N]**.

Output

In the output file `maxsum.out` print a single line with the maximum value of the abovementioned sum.

Constraints

$$2 \leq N \leq 10^5$$

$$1 \leq a[i] \leq 10^6$$

Time limit: 1.0 sec

Memory limit: 256 MB

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Examples

Input (maxsum.in)	Output (maxsum.out)
5 1 2 2 5 3	35
6 1 1 1 3 2 1	14