Contest Duration: 2025-05-24(Sat) 08:00 (http://www.timeanddate.com/worldclock/fixedtime.html?
iso=20250524T2100&p1=248) - 2025-05-24(Sat) 09:40 (http://www.timeanddate.com/worldclock/fixedtime.html?
iso=20250524T2240&p1=248) (local time) (100 minutes)   Back to Home (/home)

E - Most Valuable Parentheses

Editorial (/contests/abc407/tasks/abc407_e/editorial)   🇯🇵 / 🇬🇧

Time Limit: 2 sec / Memory Limit: 1024 MB

Score : 450 points

Problem Statement

You are given a sequence of non-negative integers $A = (A_1, \ldots, A_{2N})$ of length $2N$.

Define the score of a parenthesis sequence s of length $2N$ as follows:

- For every position i where the i-th character of s is), set A_i to 0, then take the sum of all elements of A.

Find the maximum possible score of a correct parenthesis sequence of length $2N$.

You are given T test cases; solve each.

▶ What is a correct parenthesis sequence?

Constraints

- $1 \le T \le 500$
- $1 \le N \le 2 \times 10^5$ 2025-05-24 (Sat)
- For each input file, the sum of N over all test cases is at most 2×10^5.   21:49:26 -04:00

- $0 \le A_i \le 10^9 \ (1 \le i \le 2N)$
- All input values are integers.

Input

The input is given from Standard Input in the following format:

```
T
case₁
case₂
⋮
case_T
```

case_i represents the i-th test case. Each test case is given in the following format:

```
N
A₁
A₂
⋮
A_{2N}
```

Output

Output T lines. The i-th line $(1 \le i \le T)$ should contain the answer for the i-th test case.

Sample Input 1   Copy

Copy

```
2
3
400
500
200
100
300
600
6
1000000000
1000000000
1000000000
1000000000
1000000000
1000000000
1000000000
1000000000
1000000000
1000000000
1000000000
1000000000
```

Sample Output 1   Copy

```
1200
6000000000
```
Copy

In the first test case, choosing the correct parenthesis string `(())()` gives a score of $400 + 500 + 0 + 0 + 300 + 0 = 1200$.
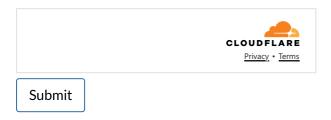
No correct parenthesis string yields a higher score, so the answer is 1200.

Note that, as in the second test case of this sample, the answer may exceed the 32-bit integer range.

Language

Python (CPython 3.11.4)

Source Code

📁 Open File | ⚙ Customize | Toggle Editor | Auto Height

```
1    |
```

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* at most 512 KiB

* Your source code will be saved as Main.*extension*.

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