

Scavenging in Fountains

time limit per test: 1 second (6 seconds for Python)

memory limit per test: 976.6 megabytes

input: standard input

output: standard output

points: 100 · problem code: sumarray

Jerry desperately needs money. At the bottom of a pool lies a line of coins.

You are given an array $a_1, \dots, a_n$, where a_i is the value of the i -th coin. Jerry asks you q questions: if he scoops up all the coins between the l -th and r -th coins (inclusive), what is the total value of the coins he scoops up?

Input

The first line contains the integer n , the number of coins in the fountain.

The second line contains n integers, $a_1, \dots, a_n$, where a_i is the value of the i -th coin.

The third line contains the integer q , the number of questions Jerry will ask.

The following q lines each contain two integers l and r , asking for the total value of the coins from the l -th coin through the r -th coin. The queries are 1-indexed.

Output

For each question Jerry asks, output a line containing the answer.

Constraints

- $1 \leq l \leq r \leq n \leq 10^6$
- $1 \leq a_i \leq 10^9$
- $1 \leq q \leq 10^6$

Example 1

Input

```
10
7 7 4 6 3 8 9 8 5 1
4
8 10
4 6
3 6
8 9
```

Output

```
14
17
21
13
```

Example 2

Input

```
10
4 5 6 10 8 10 8 9 1 7
4
4 10
1 8
3 5
4 6
```

Output

```
53
60
24
28
```