Matchsticks

Chef Ceil has some matchsticks in his kitchen.

Detail of matchsticks:

There are N matchsticks in total. They are numbered from to 0 to $N-1$ inclusive. The i^{th} matchstick takes b_i time to burn when lighted at one end, and it burns at a uniform rate.

If lighted at both ends simultaneously, the matchstick will take only half of the original time to burn down.

Arrangement:

He ties rear end of the all the matchsticks together at one point and the front end is kept free. The matchstick numbered i is adjacent to matchstick numbered $i+1$ for all $0 \leq i \leq N-2$.

Bodies of matchsticks do not touch each other, except at the rear end.

Task:

There are Q queries, in each query we ask: If he lights the free end of all matchsticks numbered between L and R inclusive, what will be the time needed for all matchsticks to get completely burnt?

Input

- First line of input contains a single integer N.
- The next line contains N space separated integers, the i^{th} of which is b_i
- The next line contains a single integer Q
- The next Q lines each contain two space separated integers - L and R. The i^{th} line represents the i^{th} query.

Output

For each query, print the answer on a new line.

Constraints:

- $1 \leq N \leq 10^6$
- $1 \leq b_i \leq 10^8$
- $1 \leq Q \leq 10^5$
- $0 \leq L \leq R \leq N-1$

Sample 1:

Input	Output
1 5 1 0 0	5.0

Sample 2:

Input	Output
2 3 5 1 0 1	4.0

✔ Correct Answer

Submission ID: 1062746502

Sub-Task	Task #	Result (time)
1	0	Correct (0.00)
1	1	Correct (0.00)
1	2	Correct (0.00)
1	3	Correct (0.00)
1	4	Correct (0.02)
1	5	Correct (0.24)
1	6	Correct (0.15)
1	7	Correct (0.15)
1	8	Correct (0.15)
1	9	Correct (0.20)
1	10	Correct (0.22)
1	11	Correct (0.02)
1	12	Correct (0.37)
1	13	Correct (0.38)
1	14	Correct (0.38)
1	15	Correct (0.38)
1	16	Correct (0.39)
1	17	Correct (0.38)
1	18	Correct (0.36)
Subtask Score: 100%		Result - Correct
		Total Score = 100%

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