

Subarray Sum of Cyclic Array

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 1024 megabytes

bribritt has an infinitely long array!

You know that $A_i = A_{i+N}$ for all integers i . In addition, you are given A_0, A_1, \dots, A_{N-1} .

Now, bribritt has Q queries. For each query, you need to find $A_l + A_{l+1} + \dots + A_r$.

Help him answer the Q queries!

Input

The first line contains two integers, N and Q .

The next line contains N integers, A_0 to A_{N-1} .

The next Q lines contain two integers each, l and r .

Output

Output Q lines, the answer for the queries.

Scoring

For all testcases,

- $1 \leq N, Q \leq 2 \times 10^5$
- $0 \leq A_i \leq 10^9$
- $0 \leq l \leq r \leq 10^9$

Subtask	Score	Additional constraints
1	10	l and $r + 1$ are multiples of N
2	10	$r, Q \leq 2 \times 10^3$
3	20	$r \leq 2 \times 10^5$
4	30	$Q = 1$
5	30	No additional constraints
6	0	Sample test cases

Example

standard input	standard output
3 2 2 6 7 1 2 2 6	13 24

Note

For the first query, the answer is $A_1 + A_2 = 6 + 7 = 13$.

For the second query, the answer is

$$\begin{aligned}A_2 + A_3 + A_4 + A_5 + A_6 &= A_2 + A_0 + A_1 + A_2 + A_3 \\&= A_2 + A_0 + A_1 + A_2 + A_0 \\&= 7 + 2 + 6 + 7 + 2 \\&= 24\end{aligned}$$