omar and computer security

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Omar is the best in cybersecurity . He has n computers . the i'th computer has value a_i.

One day k computers of his n computers got hacked . Any hacked computer his value will be 0 . Omar gets mad and he doesn't have enough time to fix all of them . So he decides to choose a range $[l, r]$ and try to fix the computers in this range under the following condition :

if the number of the hacked computers in this range is even , then he will fix all of them otherwise he won't be able to fix any of them .

After fixing a computer it restores its initial value .

You are given q queries and for each query your task is to print the total value of the computers after fixing the computers in the given range .

The queries are independents .

Input

The first line contains three integers n , k and q ($1 \le n \le 10^5$, $0 \le k \le n$, $1 \le q \le 10^5$) — the number of the computers , the number of the hacked computers and the number of queries .

The second line contains n integers a_1,a_2,...,a_n ($1 \le a_i \le 10^6$) — the values of the computers .

The third line contains k integers b_1,b_2,...,b_k ($1 \le b_i \le n$) — the hacked computers .

Each of the next q lines contains two integers l and r ($1 \le l \le r \le n$) — the descriptions of the queries.

Output

Print q lines, each containing one number — the answer to the query.

Examples

standard input	standard output
5 0 2 1 2 3 4 5 1 5 1 2	15 15
8 4 4 1 2 3 4 5 6 7 8 1 3 5 7 1 2 1 3 1 4 1 7	20 24 24 36

Note

In the second example:

1st query : there is 1 hacked computer in the range [1,2] so he won't be able to fix it so the total values = 2 + 4 + 6 + 8 = 20 .

2nd query : there are 2 hacked computers in the range [1,3] so he will be able to fix them so the total values = 1 + 2 + 3 + 4 + 6 + 8 = 24 .

3rd query : there are 2 hacked computers in the range [1,4] so he will be able to fix them so the total values = 1 + 2 + 3 + 4 + 6 + 8 = 24 .

4th query : there are 4 hacked computers in the range [1,7] so he will be able to fix them so the total values = 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 = 36 .