Array Increments (Easy Version)

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

You are given an array A of N integers. You have to process Q queries.

In each query you are given an integer x, you have to add x to every element at an odd position, and subtract it from elements with an even position, and print the value of $f(A)$, where $f(A) = a_1 - a_2 + a_3 - a_4 + \ \ldots \ \pm \ a_n$

Note here that the array is one-indexed, so when we say odd positions, we mean the first element, the third element, etc...

Input

The first line of the input has two integers N and Q ($1 \leq N, Q \leq 10^3$): the number of values in the array, and the number of queries.

The second line has N integers $a_1, a_2, \ldots, a_n$ ($1 \leq a_i \leq 10^9$): the values of the array.

Finally, there are Q lines describing the queries, each line contains an integer x ($1 \leq x \leq 10^4$).

Output

For each query, print the value $f(A)$ after changing the array values accordingly.

Example

standard input	standard output
9 2 11 2 21 41 8 5 22 7 331 2 3	356 383

Note

Please consider that the answer will not always fit in 32-bit integer type, you'll have to use 64-bit integers instead (like `long long` in C/C++).