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You are given a **sorted** array A and you have to answer Q queries:

- Each query consists of a single integer x .
- For each **subarray** of A that has an **optimal cost** $\leq x$, add the difference between the rightmost and the leftmost elements of the subarray. Formally, calculate $\sum_{\text{optimal cost}(A_l, \dots, A_r) \leq x} (A_r - A_l)$.

Standard input

The first line contains the integers N and Q , the number of elements in the sequence and the number of queries.

The second line contains the sequence of integers A_1, A_2, \dots, A_N separated by spaces.

The next Q lines, the integer x_i , the value of x for the i -th query, is found.

Standard output

For each query, return the value of the indicated summation.

Constraints and notes

- $1 \leq N \leq 10^5$.
- $1 \leq Q \leq 100$.
- $0 \leq A_i \leq 10^9$ for $1 \leq i \leq N$.
- $0 \leq x_i \leq 2 \times 10^9$ for $1 \leq i \leq Q$.

Input

Output

```
10 5
4 4 5 5 10 10 10 10 14 14
4
24
9
5
12
```

```
0
200
4
0
15
```

```
10 4
0 0 0 6 18 18 18 20 20 20
40
19
1
26
```

```
456
126
0
264
```