

### Task 4. Reorder

You are given  $N$  numbers –  $v_1, v_2, \dots, v_N$ , and an integer  $A$ . You can do an unlimited number of swaps in the array by swapping  $v_i$  and  $v_{i+1}$  for a cost of  $v_i + v_{i+1}$ . The new array after the swap would then be  $v_1, \dots, v_{i+1}, v_i, \dots, v_N$ . For a certain number  $R$ , your task is to find the minimum sum of the costs of your swaps and  $(v_1 + v_2 + \dots + v_R) \times A$ . Given  $Q$  queries and an  $R_i$  for each of them, find the minimum cost you can achieve for each query. **All queries are independent.**

#### Input

There are 3 integers on the first line:  $N$  – the size of the array,  $Q$  – the number of queries and  $A$  – the coefficient  $(v_1 + v_2 + \dots + v_R)$  is multiplied by. The second line of the input contains  $N$  positive integers  $v_1, \dots, v_N$  – the starting array. The last line holds the positive integers  $R_1, \dots, R_Q$ .

#### Output

On each of the  $Q$  lines output the minimum cost for the corresponding query.

#### Constraints

$$1 \leq Q, R_i \leq N$$

$$1 \leq v_i, A \leq 10^6$$

#### Subtasks

№	Additional constraints		Points
	$N$	Other	
1	$\leq 8$	$Q = 1$	5
2	$\leq 5000$	$Q = 1$	10
3	$\leq 10^6$	$Q = 1$	25
4	$\leq 1.5 \times 10^4$	–	10
5	$\leq 5 \times 10^4$	–	50

*Points for a subtask are given only if all the tests for it have passed.*

#### Examples

Input	Output
4 1 5 4 1 2 3 2	25
4 1 6 4 1 2 3 2	29

### Explanation of the examples

**Example №1:** It is optimal to not swap any elements. The cost is then  $(4 + 1) \times 5 = 25$ .

**Example №2:** We can first swap 4 with 1 and then 4 with 2:

4 1 2 3

1 4 2 3

1 2 4 3

The costs of the swaps are  $4 + 1 = 5$  and  $4 + 2 = 6$ . Therefore, the total cost is

$$5 + 6 + (1 + 2) \times 6 = 29.$$