

## G. Trader Problem

time limit per test: 4.5 seconds  
 memory limit per test: 512 megabytes  
 input: standard input  
 output: standard output

Monocarp plays a computer game (yet again!). This game has a unique trading mechanics.

To trade with a character, Monocarp has to choose one of the items he possesses and trade it for some item the other character possesses. Each item has an integer price. If Monocarp's chosen item has price  $x$ , then he can trade it for any item (**exactly one item**) with price not greater than  $x + k$ .

Monocarp initially has  $n$  items, the price of the  $i$ -th item he has is  $a_i$ . The character Monocarp is trading with has  $m$  items, the price of the  $i$ -th item they have is  $b_i$ . Monocarp can trade with this character as many times as he wants (possibly even zero times), each time exchanging one of his items with one of the other character's items according to the aforementioned constraints. Note that if Monocarp gets some item during an exchange, he can trade it for another item (since now the item belongs to him), and vice versa: if Monocarp trades one of his items for another item, he can get his item back by trading something for it.

You have to answer  $q$  queries. Each query consists of one integer, which is the value of  $k$ , and asks you to calculate the maximum possible total cost of items Monocarp can have after some sequence of trades, assuming that he can trade an item of cost  $x$  for an item of cost not greater than  $x + k$  during each trade. Note that the queries are independent: the trades do not actually occur, Monocarp only wants to calculate the maximum total cost he can get.

### Input

The first line contains three integers  $n$ ,  $m$  and  $q$  ( $1 \leq n, m, q \leq 2 \cdot 10^5$ ).

The second line contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $1 \leq a_i \leq 10^9$ ) — the prices of the items Monocarp has.

The third line contains  $m$  integers  $b_1, b_2, \dots, b_m$  ( $1 \leq b_i \leq 10^9$ ) — the prices of the items the other character has.

The fourth line contains  $q$  integers, where the  $i$ -th integer is the value of  $k$  for the  $i$ -th query ( $0 \leq k \leq 10^9$ ).

### Output

For each query, print one integer — the maximum possible total cost of items Monocarp can have after some sequence of trades, given the value of  $k$  from the query.

### Example

input
3 4 5 10 30 15 12 31 14 18 0 1 2 3 4
output
55 56 60 64 64

### Codeforces Round #760 (Div. 3)

Finished

### → Practice?

Want to solve the contest problems after the official contest ends? Just register for practice and you will be able to submit solutions.

### → Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

### → Problem tags

data structures dsu greedy math  
 sortings

No tag edit access

### → Contest materials

- Announcement ✕
- Tutorial ✕

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