Why Not Travel

You work at the travel agency Why Not Travel, and your job is really exciting. Your main responsibility is coming up with fascinating day trips to hidden gems off the beaten path.

It is a bit unfortunate that most of your customers keep asking about trips to that single must-see attraction in the area, which you think is severely overrated. In order to avoid losing time on answering their boring inquiries you are going to write a program that does it for you. You have already prepared a list of days when the agency offers their signature Must-See Trip™. When a customer asks about a particular date, your program should return the closest day to this date that is on your list.

Input

The first line of input contains the number of test cases z ($1 \leqslant z \leqslant 50$). The descriptions of the test cases follow.

The first line of each test case contains the number n of days on your list ($1 \leqslant n \leqslant 100\,000$). The second line contains n distinct integers $d_1, d_2, \ldots, d_n$ ($1 \leqslant d_i \leqslant 10^9$), the days when the agency offers the signature trip. The third line contains the number of customers k ($0 \leqslant k \leqslant 100\,000$). In the fourth line there are k integers $q_1, q_2, \ldots, q_k$ ($0 \leqslant q_j \leqslant 10^9$), the days that subsequent customers ask about.

Output

For each test case output in a separate line k integers; j-th of them should be the number d_i that is closest to q_j (and if there are two such numbers, then it should be the smaller out of the two).

Sample input

```
2
2
5 15
5
20 5 10 15 0
4
1 7 4 10
10
1 2 3 4 5 6 7 8 9 10
```

Sample output

```
15 5 5 15 5
1 1 4 4 4 7 7 7 10 10
```