Percentile — P77860_en

For a list of n numbers in increasing order $x_0, x_1, \ldots, x_{n-1}$ and a natural number i between 0 and 100, both of them included, we define the *ith percentile* as the (unique) number x_j such that $\frac{j}{n} < \frac{i}{100} < \frac{j+1}{n}$. Such j will not exists when $i = 0$, $i = 100$, or when $\frac{k}{n} = \frac{i}{100}$ for any $k > 0$; in these cases, the corresponding percentile is x_0, x_{n-1}, or $(x_{k-1} + x_k)/2$.

Input

The input consists of four lines. In the first one the number $n \leq 1000$ is given, and in the following one the n integer numbers $x_0, x_1, \ldots, x_{n-1}$, in increasing order and separated by spaces. In the third line there is the number $q \leq 101$ of questions. The fourth line contains q numbers between 0 and 100, both of them included, that correspond to the q percentiles that your program must compute.
Your program must solve 10 inputs as the described ones in a time of 1 second.

Output

For each one of the q questions, your program must print in a line the corresponding percentile.

Sample input 1

```
10
0 1 2 3 4 5 6 7 8 9
8
0 100 13 20 25 40 75 80
```

Sample output 1

```
0
9
1
1.5
2
3.5
7
7.5
```

Sample input 2

```
20
-4 -3 -3 -3 -1 0 0 0 0 0 0 0 0 1 2 3 4 5 6 7
8
0 5 10 15 20 25 30 78
```

Sample output 2

```
-4
-3.5
-3
-3
-2
-0.5
0
3
```

Sample input 3

```
1
13
5
0 25 50 75 100
```

Sample output 3

```
13
13
13
13
13
```

Problem information

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