COCI '14 Contest 1 #1 Prosjek

Time limit: 1.0s **Memory limit:** 32M

Mirko is practicing arithmetic operations in an interesting way during math class. First, he writes a sequence of integers A. Then, underneath the first sequence, he writes another sequence of integers B which he gets by replacing every number from the sequence A with the average value of all the numbers before the current one, including it.

For example, if the first sequence of integers A is equal to

$$1, 3, 2, 6, 8$$

then the second sequence of integers B is going to be

$$\frac{1}{1}, \frac{1+3}{2}, \frac{1+3+2}{3}, \frac{1+3+2+6}{4}, \frac{1+3+2+6+8}{5}$$

in other words

$$1, 2, 2, 3, 4$$

You are given the second sequence of integers B. Determine the first sequence of integers A to check Mirko's calculations.

Input

The first line of input contains the integer N $(1 \leq N \leq 100)$, the length of sequence B.
The second line of input contains the sequence of N space-separated integers B_i $(1 \leq B_i \leq 10^9)$.

Output

The first and only line of output must contain a sequence of N space-separated integers A_i.
Please note: The input data will be such that the elements from the sequence A are integers $(1 \leq A_i \leq 10^9)$.

Sample Input 1

```
1
2
```

Sample Output 1

```
2
```

Sample Input 2

```
4
3 2 3 5
```

Sample Output 2

```
3 1 5 11
```

Sample Input 3

```
5
1 2 2 3 4
```

Sample Output 3

```
1 3 2 6 8
```

Explanation of Output for Sample Input 3

Look at the task description.