

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 TESTS

<b>input</b> 1 2 <b>output</b> 2	<b>input</b> 4 3 2 3 5 <b>output</b> 3 1 5 11	<b>input</b> 5 1 2 2 3 4 <b>output</b> 1 3 2 6 8
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**Clarification of the third sample test:** Look at the task description.