Problem R. R

Time limit   2000 ms

Mem limit   1048576 kB

Problem Statement

You are given an integer N and a sequence $S = (S_1, \ldots, S_N)$ of length N.

Find a sequence $A = (A_1, \ldots, A_N)$ of length N that satisfies the following condition for all $k = 1, \ldots, N$:

- $A_1 + A_2 + \ldots + A_k = S_k.$

Such a sequence A always exists and is unique.

Constraints

- $1 \leq N \leq 10$
- $-10^9 \leq S_i \leq 10^9$
- All values in the input are integers.

Input

The input is given from Standard Input in the following format:

```
N
S_1  ...  S_N
```

Output

Print the elements of a sequence $A = (A_1, \ldots, A_N)$ that satisfies all the conditions in order, separated by spaces.

Sample 1

Input	Output
3 3 4 8	3 1 4

The sequence in the output actually satisfies all the conditions:

- $A_1 = 3 = S_1$;
- $A_1 + A_2 = 3 + 1 = 4 = S_2$;
- $A_1 + A_2 + A_3 = 3 + 1 + 4 = 8 = S_3$.

Sample 2

Input	Output
10 314159265 358979323 846264338 -327950288 419716939 -937510582 97494459 230781640 628620899 -862803482	314159265 44820058 487285015 -1174214626 747667227 -1357227521 1035005041 133287181 397839259 -1491424381