Problem Discrete Differential

Time Limit 1 second

Problem

For the discrete value of the first differential of function F at X is

$\nabla F(X) = F(X+1) + F(X-1) - 2F(X)$

The size of the discrete value after first derivative decrease by two. For the given integer list A, A_1, A_2, A_3 ... A_n. Print their first derivative. If there is 10 element then the output contain 8 elements, because the first and last number does not have first derivative. So the total number of element for K numbers after first derivative is K-2.

Input

The input has two lines the first line is a single integer K that denotes the size of the integer list and the second line is a sequence of K integers which is the integer list.

$1 <= K <= 100000$ $-100000 <= A_i <= 100000$ $1 <= i <= K$

Output

For the integer list, output its first derivative.

Sample Input 1	Sample Output 1
4 5 6 9 15	2 3

Sample Input 2	Sample Output 2
10 8 4 5 9 6 20 15 -4 3 -9	5 3 -7 17 -19 -14 26 -19