

What is the next number in the sequence

Given a sequence of integers $[s_1 \dots s_n]$ the first difference of this sequence d_1 is $[s_2-s_1, s_3-s_2, s_4-s_3 \dots]$. Subsequent differences can be derived from the first difference, so if we number the elements in the first difference $[d_{11} d_{12} d_{13} d_{14} \dots]$ the second difference d_2 is $[d_{12}-d_{11}, d_{13}-d_{12}, d_{14}-d_{13} \dots]$.

For some sequences, the n th difference is zero.

The triangular numbers can be thought of in this way -

$s = [1 \ 3 \ 6 \ 10 \ 15 \ \dots]$

$d_1 = [2 \ 3 \ 4 \ 5 \ \dots]$

$d_2 = [1 \ 1 \ 1 \ 1 \ \dots]$

$d_3 = [0 \ 0 \ 0 \ 0 \ \dots]$

Given such a sequence, calculate the next three elements in the sequence.

Input

A single line of text featuring M ($M < 10$) space separated integers

Output

A single line of text featuring 3 space separated integers

Example

Input:

15 32 57 90 131 180

Output:

237 302 375