Problem G. Game inversing

N players, numbered by integers from 0 to $n-1$ are sitting in a circle. The numbers are in clockwise order. Each player has a card, and a positive integer a_i is written on the card of player i. They decided to play a game. The rule is like this:

- In the beginning, the turn goes to the player 0.
- Suppose now it is player i's turn.
  - If the player i has a card: The player prints a_i on the file 'game.txt' and throws the card away. The turn goes to the a_i-th next clockwise player. (in other words, player $(i + a_i) \bmod n$)
  - Otherwise: The turn goes to the next clockwise player. (in other words, player $(i + 1) \bmod n$)
- If nobody has a card, the game is over.

Tada! Now the game is over, and I know the result ('game.txt') from the game. I want to know the original $a_0, a_1, \cdots, a_{n-1}$, but I'm not sure whether it is possible. Given n and the content of 'game.txt' made by the game, write a program that computes the values of $a_0, a_1, \cdots, a_{n-1}$.

Input

Your input consists of an arbitrary number of records, but no more than 50.

Each record contains two lines. The first line contains an integer n ($3 \le n \le 30$) The second line contains n integers $b_0, b_1, \cdots, b_{n-1}$ ($1 \le b_i \le 100$), the integers from 'game.txt' in printed order.

The end of input is indicated by a line containing only the value -1.

Output

For each input record, print a line containing $a_0, a_1, \cdots, a_{n-1}$, each separated by a space.

Example

Standard input	Standard output
5 1 2 4 3 5 3 1 3 2 -1	1 2 3 4 5 1 3 2

Explanation of the example

For the first example:

1. The turn goes to player 0. Player 0 has a card, so the player prints '1' in the standard output. The turn goes to player $(0 + 1) \bmod 5 = 1$.
2. Player 1 has a card, so the player prints '2' in the standard output. The turn goes to player $(1 + 2) \bmod 5 = 3$.
3. Player 3 has a card, so the player prints '4' in the standard output. The turn goes to player $(3 + 4) \bmod 5 = 2$.
4. Player 2 has a card, so the player prints '3' in the standard output. The turn goes to player $(2 + 3) \bmod 5 = 0$.
5. Player 0 doesn't have a card, so the turn goes to player 1.
6. Player 1 doesn't have a card, so the turn goes to player 2.
7. Player 2 doesn't have a card, so the turn goes to player 3.
8. Player 3 doesn't have a card, so the turn goes to player 4.
9. Player 4 has a card, so the player prints '5' in the standard output. The turn goes to player $(4 + 5) \bmod 5 = 4$.
10. Nobody has a card, so the game is over.

So for $a = [1,2,3,4,5]$, the content of 'game.txt' is "1 2 4 3 5". This is why the example input is "1 2 4 3 5" and the example output is "1 2 3 4 5".

Time Limit

1 second.