
Problem A. Card Shuffling

Input file: *standard input*
Output file: *standard output*
Time limit: 1 second
Memory limit: 512 mebibytes

Yuuka has a deck of n cards labeled with $0, 1, 2, \dots, (n - 1)$.

Initially, the cards are placed in the order $p_1, p_2, \dots, p_n$ from top to bottom. In each round, if the top card is labeled with x , Yuuka will place it x cards downward, so it becomes the card number $(x + 1)$ in the deck, counting from 1. The relative order of other cards will not be changed.

How many rounds will pass until the card labeled with 0 comes to the top?

Input

The first line contains an integer n ($1 \leq n \leq 32$).

The second line contains n distinct integers $p_1, p_2, \dots, p_n$ ($0 \leq p_i < n$).

Output

Output an integer which denotes the number of rounds. If the card labeled with 0 never comes to the top, output “-1” instead.

Examples

standard input	standard output
5 1 3 2 4 0	13
2 0 1	0