Problem E. Ebola Virus

Input file:	ebola.in
Output file:	ebola.out
Time limit:	2 seconds
Memory limit:	512 megabytes

You are the leader of the team that is going to cure Ebola virus using new experimental medicine in several villages of one African country. There are n villages located along the only road of the country, numbered from 1 to n along the road. In the morning of the first day you are at the village number 1.

Initially there are a_i people who are infected with Ebola virus in the i-th village. Each day you can do one of the following: either cure all infected people in the village you are currently in, or move to neighboring village. If there are still k infected people in some village by the end of the day, they infect k other people in the village and then die. So actually the number of infected people stays the same in each uncured village, but each day a_i new people die.

You would like to cure people in all villages in such way that as few people as possible eventually die. However, there is a restriction: people must not lose hope. So sometimes your actions are forced by the following rule. Suppose that you have entered the i-th village and decided not to cure people in it, but go to the other village on the following day. In such case if afterwards you decide to move from village j to village j' such that j' is closer to i than j, you must keep moving in this direction until you reach village i, and you must cure people in i when reaching it. You may, however, stop to cure people in intermediate villages while doing so.

For example, suppose that you are initially in the village 1. On the first day you move to village 2. On the second day you move to village 3. On the third day you cure people in village 3. On the fourth day you move to village 2. Now you are forced to cure people in village 2 by the rule above. Also you are not allowed to move to village with greater number until you reach and cure village 1. So you must cure people in village 2 on day 5, move to village 1 on day 6 and cure people there on day 7. Now you again can choose your actions.

Input

The input file contains multiple test cases.

The first line of each test case contains n — the number of villages ($1 \le n \le 3000$). The following line contains n integers: $a_1, a_2, \ldots, a_n$ ($1 \le a_i \le 10^9$). Input is followed by a line with $n = 0$.

The sum of values of n in all test cases in one file doesn't exceed 3000.

Output

For each test case output one integer: the minimal possible number of people that would die before people in all villages are cured.

Examples

ebola.in	ebola.out
6 40 200 1 300 2 10 0	1950

In the given example the optimal sequence of actions is the following: go to village 2, cure people at village 2, go to village 3, go to village 4, cure people at village 4, go to village 3, cure people at village 3 (forced), go to village 2 (forced), go to village 1 (forced), cure people at village 1 (forced), go to villages 2, 3, 4, 5, 6, cure people at village 6, go to village 5, cure people at village 5 (forced, though need to do it any way).

The total curing process takes 18 days, number of people dying each day is, respectively, 553, 353, 353, 353, 53, 53, 52, 52, 52, 12, 12, 12, 12, 12, 12, 2, 2, 0.