

Bomb

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 256 megabytes

Peter has n bombs lying on a straight line and the i -th bomb is at position x_i . Each bomb will have a blast radius r_i (r_i is an integer). When a bomb blasts, all the bombs not further than the blast radius will blast too. A bomb with blast radius r will cost r^2 dollars. Peter wants to choose the blast radius r_i for each bomb so that no matter which bomb is detonated initially, finally all the bombs will blast.

Help Peter to minimize the total cost for the n bombs.

Input

The input contains multiple test cases. For each test case:

The first line contains an integer n ($1 \leq n \leq 3000$) – the number of bombs.

The second line contains n integers x_1, x_2, \dots, x_n ($1 \leq x_i \leq 10^6, x_1 < x_2 < \dots < x_n$).

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

Output

For each test case, output the total cost in the first line.

Examples

standard input	standard output
5	51
1 4 5 6 10	33
3	
1 2 6	