

Multiply Matrixs

Multiplying a matrix of size $m \times n$ by an matrix of $n \times p$, the number of multiplications to use is $m.n.p$.

On the other hand, multiplication of matrices is coherent, that is: $(A.B) .C = A. (B.C)$. Therefore in different sequences, each determines the number of multiplications to use.

Given N matrices $A_1, A_2 \dots A_n$, the size of A_i matrix is $d_{(i-1)} \times d_i$. Determine the minimal multiplication to using for multiplying n matrixs $A_1, A_2 \dots A_n$.

Input

The first line contains a positive integer n ; $1 \leq n \leq 100$.

The second line contains $n + 1$ integers $d_0, d_1, d_2, \dots, d_n$; $2 \leq d_i \leq 100$

Output

A single integer is the least number of multiplications to use.

Example

Input:

6

3 3 3 4 2 2 3

Output

90