Matrix Chain Multiplication

Question

1. You are given an array(arr) of positive integers of length N which represents the dimensions of N-1 matrices such that the ith matrix is of dimension arr[i-1] x arr[i].  
2. You have to find the minimum number of multiplications needed to multiply the given chain of matrices.

Input Format

A number N  
arr1  
arr2.. N integers

Output Format

Check the sample output and question video.

Constraints

2 <= N <= 1000  
1 <= arr[i] <= 500

Sample Input

3  
1  
2  
3

Sample Output

6