#include<bits/stdc++.h>

using namespace std;

int solve(vector<int> arr){

int n = arr.size();

vector<vector<int> > dp(n,vector<int>(n));

for(int g=0;g<n;g++){

for(int i=0,j=g;j<n;j++,i++){

if(g==0){

dp[i][j] = 0;

}

else if(g==1){

dp[i][j] = 0;

}

else if(g==2){

dp[i][j] = arr[i]\*arr[i+1]\*arr[i+2];

}

else{

int min\_ = INT\_MAX;

for(int k=i+1;k<=j-1;k++){

int tri = arr[i]\*arr[k]\*arr[j];

int left = dp[i][k];

int right = dp[k][j];

int total = tri+left+right;

min\_ = min(min\_,total);

}

dp[i][j] = min\_;

}

}

}

return dp[0][n-1];

}

int main(){

int n;

cin>>n;

vector<int> arr(n);

for(int i=0;i<n;i++){

cin>>arr[i];

}

cout<<solve(arr);

}