//Connect the ropes in such a manner such that the overall cost of connecting ropes is minimum.

#include <iostream>

#include<vector>

#include<queue>

using namespace std;

int connectTheRopesWithMinCost(int \*arr,int n){

priority\_queue<int,vector<int>, greater<int>> pq(arr, arr+n);

int cost=0;

while(pq.size()>1){

int first=pq.top();

pq.pop();

int second=pq.top();

pq.pop();

cost=cost+first+second;

pq.push(first+second);

}

return cost;

}

int main()

{

int n,i;

cin>>n;

int \*arr=new int[n];

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

cin>>arr[i];

}

cout<<connectTheRopesWithMinCost(arr,n);

}

Input-

4

4 2 3 6

Output-

29

//cost=0+(2+3)=0+5=5

//cost=5+(2+3+4)=5+9=14

//cost=14+(2+3+4+6)=14+15=29