# Stick values

On a sunny day, Stjepan and Bobert were arguing over their problem solving skill under a big apple tree. Bobert brought up a nice problem he had just recently solved and claimed that Stjepan could not solve it. Stjepan is desperate and needs your help. Here is Bobert's problem:

Given an array of **N** (1 <= N <= 10^5) numbers (0 <= **ai** <= 10^9) and **K** (1 <= K <= 20) sticks of a certain length **Li** (0 <= Li <= N,  such that the sum of all lengths is equal to N), find the best possible distribution of the sticks among the array such that:

1) a stick of length $L_x$ can cover any interval of the array whose length is equal to the length of the stick (it can cover $L_x$ consecutive numbers of the array)

2) all sticks must be used and can not overlap or leave the borders of the array

3) the value of a stick of length $L_x$ covering the interval [lo, hi] is equal to: $L_x$ * (max[lo, hi] - min[lo, hi])
Note that: max = largest element of the array inside the interval and min = smallest element of the array inside the interval

4) the sum of all stick values must be as large as possible

**Note:** double-check your complexity

## Input

The first line contains an integer N.

The second line contains N numbers representing the array.

The third line contains an integer K.

The fourth line contains K numbers representing the stick lengths.

## Output

The only line should contain the solution - the maximum sum of stick values as explained in the task.

## Example

**Input:**
9
2 6 3 1 8 4 3 5 6
4
2 3 2 2

**Output:**
33