

自然数拆分 (**decompose.cpp/c**)

限制：1S, 128MB

Description

任何一个大于 1 的自然数 n ($2 \leq n \leq 20$)，总可以拆分成若干个小于 n 的自然数之和。

Input (**decompose.in**)

输入有多组数据，对于每组数据就一个数 n 。

Output (**decompose.out**)

对于每组输入输出 n 的拆分方法。

Sample Input

```
4
7
```

Sample Output

```
4=1+1+1+1
4=1+1+2
4=1+3
4=2+2
total=4
7=1+1+1+1+1+1+1
7=1+1+1+1+1+2
7=1+1+1+1+3
7=1+1+1+2+2
7=1+1+1+4
7=1+1+2+3
7=1+1+5
7=1+2+2+2
7=1+2+4
7=1+3+3
7=1+6
7=2+2+3
7=2+5
7=3+4
total=14
```

剔除多余括号

([bracket.cpp/c](#))

限制：1S 128MB

键盘输入一个含有括号的四则运算表达式，可能含有多余的括号，编程整理该表达式，去掉所有多余的括号，原表达式中所有变量和运算符相对位置保持不变，并保持与原表达式等价。

例：输入表达式	应输出表达式
$a+(b+c)$	$a+b+c$
$(a*b)+c/d$	$a*b+c/d$
$a+b/(c-d)$	$a+b/(c-d)$

注意输入 $a+b$ 时不能输出 $b+a$ 。

表达式以字符串输入，长度不超过 255。输入不要判错。

所有变量为单个小写字母。只是要求去掉所有多余括号，不要求对表达式化简。

输入与输出样例

输入文件名： [bracket.in](#)

输出文件名： [bracket.out](#)

输入	输出
样例 1: $a+(b+c)$	样例 1: $a+b+c$
样例 2: $a+b/(c-d)$	样例 2: $a+b/(c-d)$
样例 3: $((a+b)*f)-(i/j)$	样例 3: $(a+b)*f-i/j$

Allocation

(allocation.cpp/c)

Time Limit : 1 sec , Memory Limit : 131072 KB

You are given n packages of w_i kg from a belt conveyor in order ($i = 0, 1, \dots, n - 1$). You should load all packages onto k trucks which have the common maximum load P . Each truck can load consecutive packages (more than or equals to zero) from the belt conveyor unless the total weights of the packages in the sequence does not exceed the maximum load P .

Write a program which reads n , k and w_i , and reports the minimum value of the maximum load P to load all packages from the belt conveyor.

Input (allocation.in)

In the first line, two integers n and k are given separated by a space character. In the following n lines, w_i are given respectively.

Output (allocation.out)

Print the minimum value of P in a line.

Constraints

- $1 \leq n \leq 100,000$
- $1 \leq k \leq 100,000$
- $1 \leq w_i \leq 10,000$

Sample Input 1

```
5 3
8
1
7
3
9
```

Sample Output 1

```
10
```

If the first truck loads two packages of $\{8, 1\}$, the second truck loads two packages of $\{7, 3\}$ and the third truck loads a package of $\{9\}$, then the minimum value of the maximum load P shall be 10.

Sample Input 2

```
4 2
1
2
2
6
```

Sample Output 2

```
6
```

If the first truck loads three packages of $\{1, 2, 2\}$ and the second truck loads a package of $\{6\}$, then the minimum value of the maximum load P shall be 6.

Minimum Cost Sort

(min_cost_sort.cpp/c)

Time Limit : 1 sec , Memory Limit : 131072 KB

You are given n integers $w_i (i = 0, 1, \dots, n - 1)$ to be sorted in ascending order. You can swap two integers w_i and w_j . Each swap operation has a cost, which is the sum of the two integers $w_i + w_j$. You can perform the operations any number of times.

Write a program which reports the minimal total cost to sort the given integers.

Input (min_cost_sort.in)

In the first line, an integer n is given. In the second line, n integers $w_i (i = 0, 1, 2, \dots, n - 1)$ separated by space characters are given.

Output (min_cost_sort.out)

Print the minimal cost in a line.

Constraints

- $1 \leq n \leq 1,000$
- $0 \leq w_i \leq 10^4$
- w_i are all different

Sample Input 1

```
5
1 5 3 4 2
```

Sample Output 1

```
7
```

Sample Input 2

4

4 3 2 1

Sample Output 2

10

最短子数组

(subarray.cpp)

限制：1 秒

256MB

题目描述：给你一个整数数组 `nums` ，你需要找出一个连续子数组 ，如果对这个子数组进行升序排序，那么整个数组都会变为升序排序。

请你找出符合题意的最短子数组，并输出它的长度。

输入：(subarray.in)

一个整数数组 `nums`。

输出：(subarray.out)

输出最短子数组的长度。

输入样例 1：

2 6 4 8 10 9 15

输出样例 1：

5

样例 1 解释：你只需要对 `[6, 4, 8, 10, 9]` 进行升序排序，那么整个表都会变为升序排序。

输入样例 2：

1 2 3 4

输出样例 2：

0

输入样例 3：

1

输出样例 3：

0

数据范围限制：

1 <= 数组 `nums` 长度 <= 10^6

-10^5 <= `nums[i]` <= 10^5