**Max Integer**

Ram aspires to become a mathematician , he just learnt the  formula for sum of n numbers. He wants to find the maximum number n,such that sum of n numbers is less than a given value.  
Given an integer bound, write a program to find the maximal integer n such that 1 + 2 + ... + n < bound.  
Help Ram with the program.  
  
**Input format:**  
A single integer that denotes the Integer bound  
  
**Output format:**  
A single integer that corresponds to  maximal integer, n.  
  
**Sample Input 1:**  
14  
  
**Sample Output 1:**  
4  
  
**Explanation:**  
n= 1  
Sum = 1  
n=2  
Sum = 1+2 = 3  
n=3  
Sum = 1 + 2 + 3 = 6  
n = 4  
Sum = 1 + 2 + 3 + 4 = 10  
n = 5  
Sum = 1+ 2 + 3 + 4 + 5 = 15  
  
For n = 5 The sum is greater than the bound value 14 , Maximum n value with sum below the bound is 4.  
  
**Sample Input 2:**  
21  
  
**Sample Output 2:**  
5

**Tug of War**

Your friend says he's stronger than you and challenges you for a Tug of War match using single hand. The strongest hand is used for the challenge. But you know the strengths of both your's and your friend's arms . You plan to accept the challenge only if you're stronger. Write a program to find who's stronger.  
  
Two of you are equally strong if the heaviest weights they each are able to lift are equal.  
Two people are equally strong if their strongest arms are equally strong (the strongest arm can be either the right or the left).  
  
Given your's and your friend's arms' lifting capabilities find out who is stronger.  
  
**Input Format:**  
First line is an integer that corresponds to the strength of your left arm.  
Second line is an integer that corresponds to the strength of your right arm.  
Third line is an integer that corresponds to the strength of friend's left arm.  
Fourth line is an integer that corresponds to the strength of friend's right arm.  
  
**Output Format**  
Output is a string either "You" or "Friend" or "Equal".  
  
**Sample Input 1:**  
10  
15  
15  
10  
  
**Sample Output 1:**  
Equal  
  
**Sample Input 2:**  
15  
10  
12  
14  
  
**Sample Output 2:**  
You

**Maximum number of pieces**

You're given a Stick of length X. You have to break it into smaller pieces of distinct lengths.  
 Write a program to find the maximum possible number of smaller pieces that you can get from breaking the original piece?  
  
**Input Format:**  
A single integer that denotes the Stick length  
  
**Output Format:**  
As single integer that denotes the max number of pieces posible  
  
**Sample Input 1:**  
14  
  
**Sample Output 1:**  
4  
  
**Sample Input 2:**  
3  
  
**Sample Output 2:**  
2

**Ascending order sequence**

You have found trees grown on a line , but they are not in order . You plan to find the portion of trees with heights in ascending order.  
Given a integer array  that represents the heights of trees , write a program to find the maximum length of ascending order sequence.  
  
**Input Format :**  
A single integer that denotes the size of the array  
Space separated integer array values that corresponds to the array values.  
  
**Output Format :**  
A single integer that denotes the maximum length  
  
**Sample Input 1**  
14  
0 1 3 5 7 0 1 2 3 4 5 6 7 0  
  
**Sample Output 1**  
8  
  
**Sample Input 2**  
5  
2 -2 2 -2 2  
  
**Sample Output 2**  
2

**Contiguous Subarray**

Ramu wants to test the mathematical skill of Samu. Ramu challenges Samu to solve the following problem.  
Given an array of integers, find the maximum length  of possible contiguous subarray having product less the given number x.   
Write a program  to help Samu.  
  
**Input Format:**  
A single integer that denotes the size of the array.  
Integer values seperated by a space that corresponds to the array elements.  
A single integer that denotes the  x value.  
   
**Output Format:**  
Max length of the subarray having the product less than x.  
  
**Note:**If such sub-array doesn't exist, print 0.  
  
**Sample Input 1:**  
4  
1 2 3 4  
10  
  
**Sample Output 1:**  
3  
  
**Sample Input 2:**  
6  
2 4 1 7 8 9  
60  
  
**Sample Output 2:**  
4

**Spirally increasing Matrix**

Your assistant has designed a spiral staircase , each step further should be larger than the current step. Check whether the spiral staircase is correct. If true find the sum of heights of all steps , If false find the first index (r,c) at which the rule is violated.  
  
Given a Square matrix ,  write a program to check whether the numbers are in spirally increasing order.. If true find the sum of heights of all steps , If false find the first index (r,c) at which the rule is violated.  
  
**Note** : The starting number of  the stair can be any integer, and it will start from top left part of the matrix.  
  
**Input Format:**  
A single integer that denotes the Size of the array  
Space separated integer array values that denote the height of each step.  
  
**Output Format:**  
If true print true  
and the sum of heights of all steps  
  
If false print false  
and the first index(r,c) at which the rule is violated  
  
**Sample Input 1:**  
4  
1 2 3 4  
12 13 14 5  
11 16 15 6  
10 9 8 7  
  
**Sample Output 1:**  
true  
136  
  
**Explanation:**  
1 < 2 < 3 < 4 < 5 < 6 < 7 < 8 < 9 < 10 < 11 < 12 < 13 < 14 < 15 < 16  
The condition is true for all the elements of the  matrix.  
Sum of the numbers = 136  
  
**Sample input 2:**  
3                                     
5 6 7  
9 8 5  
2 3 4  
  
**Sample Output 2:**  
false  
1 2  
  
**Explanation:**  
5 < 6 < 7 !< 5  
The condition fails at index (1,2)