Typically, the problem statement has plenty of words; your goal is to turn them into a program. Here is an example:

Triangle

(Sample problem)

A triangle has three sides, each of which has a length. It turns out that specifying three numbers for the length of the three sides of a triangle is enough information to draw a triangle. congruent to the original one. However, not every choice of three numbers *can* form a triangle. For example, if the numbers are 1.0, 2.0, and 4.0, there is no way to draw a triangle, because no amount of stretching will permit the 1.0 and 2.0 sides to connect th e two endpoints of the 4.0 line. The

restriction on lengths which can form a triangle is called the *Tiiangle lnequaJjty:*

a+b>c

where a, b, and c are the lengths of the three sides, c being the longest.

For each iteration of the problem, you are given three numbers, and you must print out a line with the word TRIANGLE if they can form the sides of a triangle, and NO if they cannot. There are

three iterations, that is, three sets of three numbers. You will produce three lines of output.

Sample Input:

1.0 2.0 4

45 45 45.0

60 15 80

Sample Output: NO

TRIA NGLE NO

Here is a sample solution, coded in the C language. I used scanf for input. The input is pretty ugly, but the rest of the program isn 't too difficult.

/\* Triangle problem -- C version \*/

#include <stdio . h >

int main () {

float a,b,c,t;

int i;

/\* repeat 3 times \*/

for (i=O; i<3; i++) {

if (scanf("%g", &a) != 1) {printf("oops! bad input?\n");} if (scanf("%g", &b) != 1) {printf("oops! bad input?\n");} if (scanf("%g", &c) != 1) {printf("oops! bad input?\n") ;}

/\* make sure c longest side \*/

if (a>c) {

float t = c;

c = a;

a = t;

}

if (b>c) {

float t c;

c = b;

b = t;

}

/\* triangle inequality satisfied? \*/

if (a+b > c) {

printf("TRIANGLE\n");

}

else {

printf ( "NO\n");

}

}

}

This sample solution is coded in C++. Much prettier *VO* than C:

*II* Triangle problem-- C++ version

#include <iostream>

main(){

*II* do the three trials called for in the contest for (int i = *0;* i<3 *;* i++){

float *a , b,c;*

cin >> a >>b *>>Ci*

*II* make sure c longest side

if (a>c){

float t = *Cj*

c = *a;*

a = t;

}

if (b>c){

float t c;

c b·*I*

b = t·*I*

}

*II* triangle inequality satisfied?

if (a+b >c){

cout << 11 TRIANGLE\n11 ;

}

else {

cout << "NO\n";

}

} *II* end of repeat 3 times loop

*}II* end of main

*II* Triangle problem -- Java version import java.util.Scanner;

public class Sample {

public static void main(String [] unused){

*II* set up for input from console

Scanner ins =new Scanner(System.in); *II* NOTICE the scanner is

created OUTSIDE the loop!

*II* do the three trials called for in the contest

for (int i = 0; i<3 ; i++){

float *a 1 b 1 c;*

*II* read the three numbers a ins.nextFloat();

b = ins.nextFloat();

c = ins.nextFloat();

*II* make sure c longest side if (a>c){

float t = c;

c a·*I*

a t·*I*

}

if (b>C){

float t c·*I*

c b·*I*

b = t;

}

*II* triangle inequality satisfied?

if (a+b > c){

System.out.println("TRIANGLE");

}

else { System.out.println("NO");

}

} *II* end of repeat 3 times loop

*}II* end of main

*}II* end of Sample class

This example is coded in Visual Basic. Notice the use of CDbl (String) to convert a String input to a double;in general,you need to pay more attention to input than you may be used to.

Module Module!

Dim x As String Dim y() As String Dim s As Double

Dim a, b,c As Double

Sub Main()

For i As Integer = 1To 3

' funny input with multiple items per line x = Console.Readline

y = x.Split

'Iassume I know what it looks like ... a = CDbl(y(O))

b = CDbl(y(l))

c = CDbl(y(2))

' triangle test code:

' first put largest value in a

If a < b Then

s =a a= b b = s

End If

If a < c Then

s=a

a= c

c = s

End If

' commented out debugging code

'Console.Writeline(a)

'Console.Writeline(b)

'Console.Writeline(c)

' main comparison of program

If a >= b + c Then

Console.Writeline(..NOT A TRIANGLE..)

Else .

Console.Writeline(..TRIANGLE 11

)

End If

Next

I instead of final readline, which would confuse the judges,

I I instead place a VS breakpoint on the End Sub

End Sub

End Module

. # This is a sample program using python 3.2, which differs from python 2.x

# in some simple ways:

# 1) print is a function, and must have parent eses like any other fu ction call

# 2) the preferred way to accept input from the console is "input()"

# which always returns a string. You may use

# int(input()) or float(input()) if you want an integer

# or floating-point value.

# This program does three iterations of the triangle inequality program

# for each iteration, it accepts three numbers, and determines whether they

# can form a triangle

for i in range(3):

#the input for the'sample program is easy in C++, or with a java Scanner,

# but a bit of a pain for Python line = 1 1 # line initially empty

items = list() # start items as empty list while (len(items)< 3):

line= line + 1 1 + input()# accept a whole line of input

items = line.split() # split on whitespace into an array of items a= float(items[O])

b float(items[l])

c = float(items[2])

if a<b+c and b < ate and c < a+b print ("triangle")

else:

print ("no")