FILL IN THE BLANKS BELOW,
AND THEN STUDY THE DIRECTIONS CAREFULLY

NAME Daksh Maheshwari **DATE** 05/24/2025

DIRECTIONS

In this booklet, a number of problems are stated in the form of flow-charts.

1. A flow chart is simply a "road map"by which you must find your way from one "town" to the next and obey every instruction you come to.

2. Always follow the "road" downward, and to the right or left depending upon the direction of the arrow unless an instruction requires you to do otherwise.

3. When you come to a fork in the "road" there will be a question for you to answer; match your answer with the "signposts" on the branches leading out of the fork, and you will know which way to go.

4. When you are told to put a number into a box, it is understood that whatever number was previously in that box has just been erased.

5. All numbers used in this exam are to be whole numbers.

6. Mark up the flow-charts in any way you feel will help you. Use the margins, or the blank left hand pages, for your "scratch" work. Do all your work in this booklet. If you get "stumped" on a problem, feel free to move on to the next one. Youcan come back to a problem you have previously skipped at any time.

7. When you are finished, copy your answers into the spaces on this cover. Use extreme care in doing so, since this copy of your answers will be used in scoring the test.

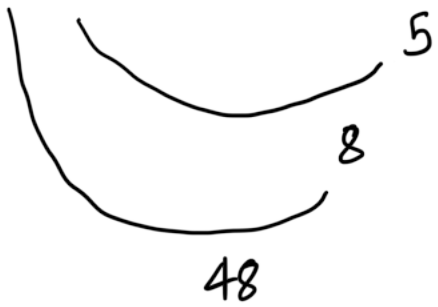
COPY YOUR ANSWERS HERE

1	16		
2	21		
3	11	11	
4	3		
5	8		
6	14		
7	4		
8	3	1	
9	2	1	
10	3	1	
11	5	4	5

PRINT NAME AT TOP OF THIS PAGE, THEN PROCEED TO THE QUESTIONS

EXAMPLE A:

Box No.	1	2	3	4	5	6	7	8	9	10
	6	3	9	2	11	2	91	48	66	1



START

1 Add: (number in box 4) + (number in box 2), put result into box 7.

2 Add: (number in box 7) + (number in the box whose number is in box 6), put result into box 6.

3 Multiply: (number in box 6) X (number in box 1), put result into box 5.

END What number is now in box 5?..... 48 _____

EXAMPLE B:

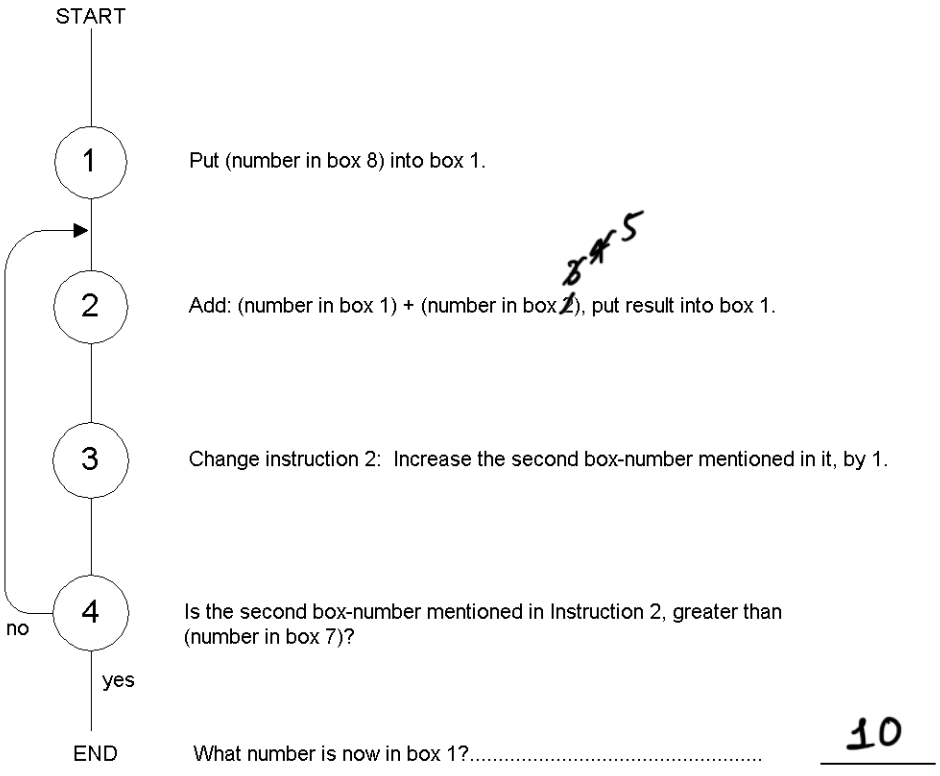
Box No.	1	2	3	4	5	6	7	8
	3	7	2	1	5	12	4	0

0

7

9

10



You have now finished the two examples for this exam. These will not be used in determining your final score.

The answers for the two examples are:

Example A 48

Example B 10

These examples are meant to help you make sure you understand the directions.

The directions are complete and no questions should be required. If you got the examples wrong you probably need to go back and read the directions again!!!!!!

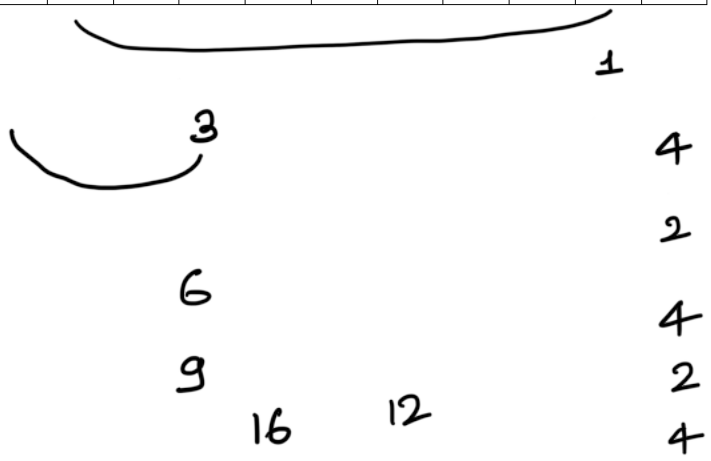
You should refer to the directions as often as necessary during the test if you have any doubt whatever about the "ground rules".

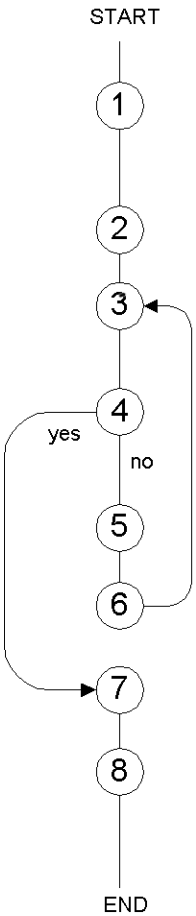
If you got the two examples correct, it would probably still be a good idea to go back and read the directions again before proceeding, but it is not required.

You may now continue with the remaining portion of the exam.

Problem 1

Box No.	1	2	3	4	5	6	7	8	9	10	11	12
	2	3	1	5	7	6	21	7	11	9	0	2





Add: (number in box 3) + (number in box 11), put result into box 11.

Add: (number in box 1) + (number in the box whose number is in box 9), put result into box 5.

Multiply: (number in box 12) X (number in box 12), put result into box 12.

Is (number in box 5) = (number in box 10)?

Subtract: (number in box 12) - 2, put result into box 12.

Add: (number in box 5) + (number in box 2), put result into box 5.

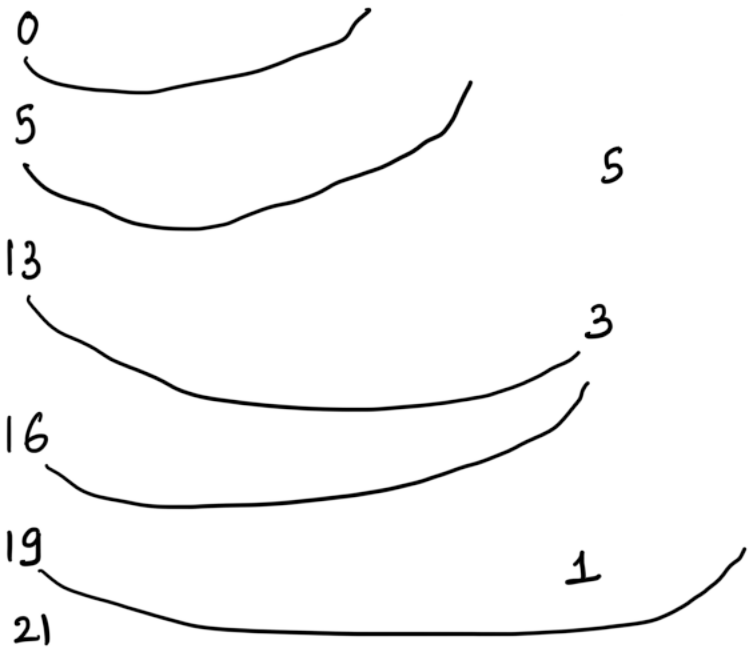
Subtract: (number in box 7) - (number in box 5), put result into box 8.

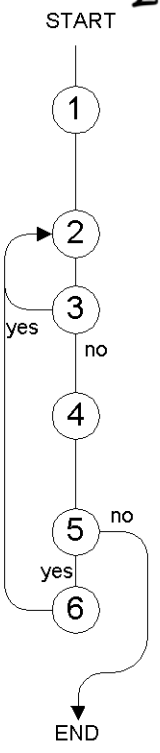
Add: (number in box 12) + (number in box 8), put result into box 6.

What number is now in box 6?..... 16 _____

Problem 2

Box No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	-8	13	1	6	2	5	13	6	4	7	5	2	6	7	9





Subtract: (number in box 4) - (number in the box whose number is in box 7), put result into box 1.

Add: (number in box 1) + (number in box 8), put result into box 1. 8 10 12 14

Is (number in box 1) exactly divisible by 4?

Change Instruction 2: Increase the second box-number mentioned in it, by (number in the box whose number is in box 11).

Is (number in box 2) more than the second box-number mentioned in Instruction 2?

Subtract: (number in box 10) - 2, put result into box 10.

What number is now in box 1?..... 21

Problem 3

Box No.	1	2	3	4	5	6	7	8	9	10	11	12
	8	6	5	7	3	2	2	11	10	-2	4	1

8 5

8

11

7

START

1. Add: (number in box 11) + 1, put result into box 11.

4 9

2. Put (number in box ~~1~~) into box ~~10~~.

3. Is the first box-number mentioned in Instruction 2 an odd number?
   - no → 6
   - yes → 4

4. Take as your next instruction, the one whose number is in the box whose number is in box 6. instruction 6

5. Change instruction 2: Increase the first box-number mentioned in it by 2.

6. Add: (number in box 5) + (number in box 11), put result into box 11.

7. Change Instruction 2: Increase the first box-number mentioned in it, and decrease the second box-number mentioned in it, each by (number in box 12).

8. Is the last box-number mentioned in Instruction 2 less than (number in box 1)?
   - yes → 9
   - no

9. Take as your next instruction, the one before Instruction 3.

END

What number is now in ..... box 8? 11

box 11? 11

READ THESE DIRECTIONS

The problems in the next part of the exam are slightly different from those you have just done.

In these problems, you will be told exactly what each flow-chart is to accomplish, and you must decide what number must be in a specified box, in order that some-one following the flowchart will do the required job - *no more and no less*

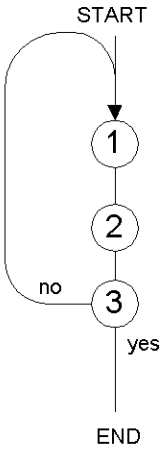
TURN THE PAGE AND CONTINUE

Problem 4

The purpose of the following flow-chart is to put a zero in each of the boxes: 5, 7, and 9.

In order to accomplish exactly this - no more and no less - what number must be in box 3?

Box No.	1	2	3	4	5	6	7	8	9	10	11	12
	12	7		2	3	19	6	0	1	72	- 3	9
					0		0		0			



Subtract: (number in box 12) - (number in box 12), put result into box 8.

Change Instruction 1: Decrease the last box-number mentioned in it, by 2.

Is the last box-number mentioned in Instruction 1 equal to (number in box 3)?

What number must be in box 3?..... 3

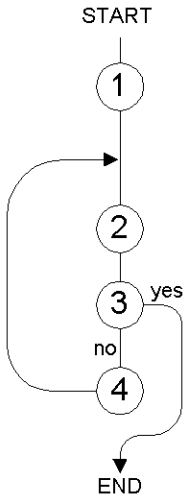
Problem 5

The purpose of the following flow-chart is to add the numbers in boxes 7, 8, 9, and 10 and put the total into box 2.

In order to accomplish exactly this - no more and no less - what number must be in box 5?

Box No.	1	2	3	4	5	6	7	8	9	10
	16	1	4	- 3		7	5	2	8	11

0
11
19
21
26



Subtract: (number in box 2) - (number in box 2), put result into box 2.

8 7

Add: (number in box 2) + (number in box 10), put result into box 2.

Is (number in box 5) greater than the second box-number mentioned in Instruction 2?

Change Instruction 2: Decrease the second box-number mentioned in it, by 1.

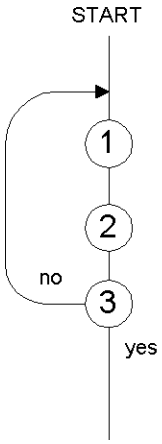
What number must be in box 5?..... 8

Problem 6

The purpose of the following flow-chart is to double the number in each of the boxes 3, 6, 9, 12.

In order to accomplish exactly this - no more and no less - what is the largest number which may be in box 1?

Box No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15



1 Add: (number in box 3) + (number in box 3), put result into box 3.

2 Change Instruction 1: Increase all box-numbers mentioned in it, by 3.

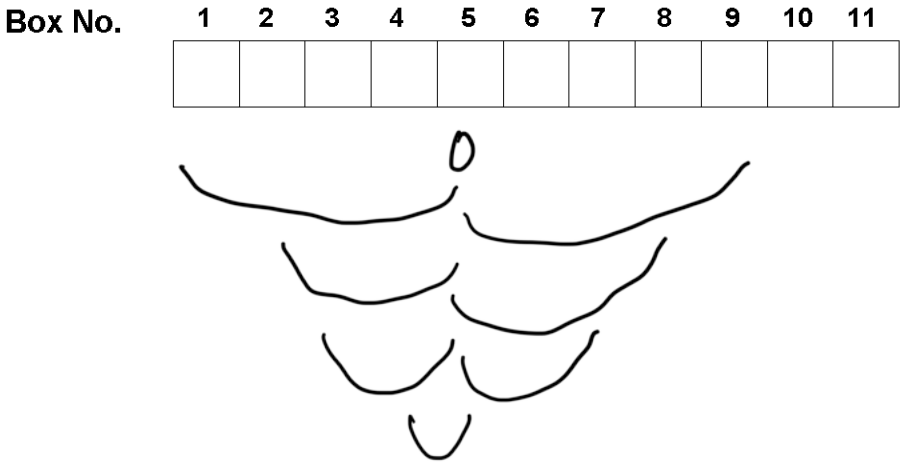
3 Is (number in box 1) less than the second box-number mentioned in instruction 1?

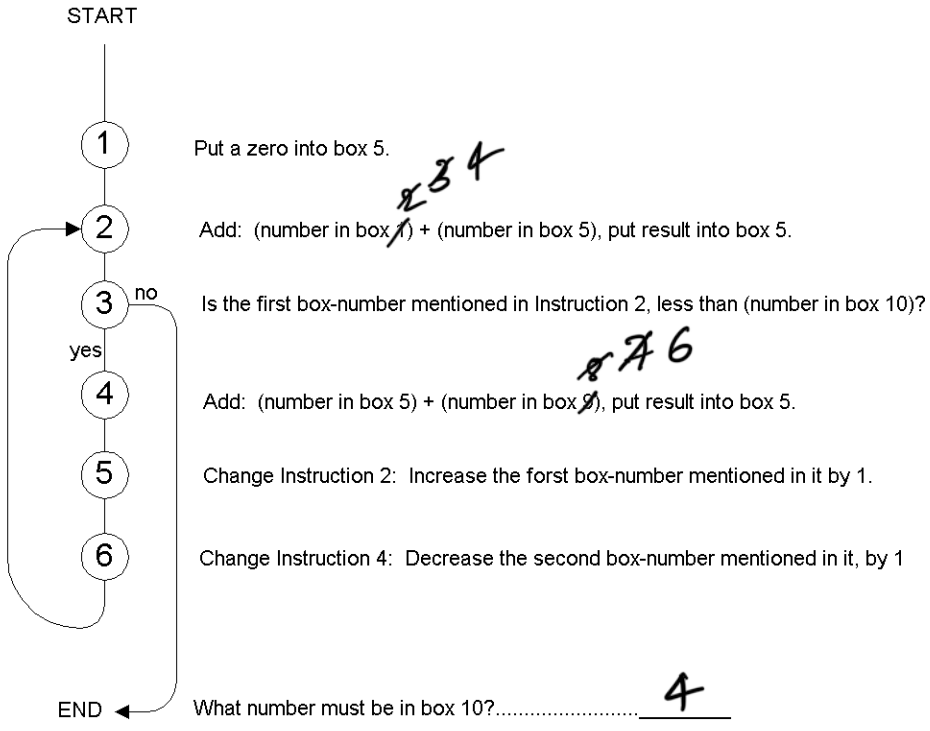
What is the largest number which may be in box 1?..... 14

Problem 7

The purpose of the following flow-chart is to add the numbers in boxes 1, 2, 3, 4, 7, 8, 9, and put the total in box 5.

In order to accomplish exactly this - no more and no less - what number must be in box 10?





READ THESE DIRECTIONS

In the following problems, you are told something about the result, and you must determine what the contents of the boxes must have been, in order to obtain that result.

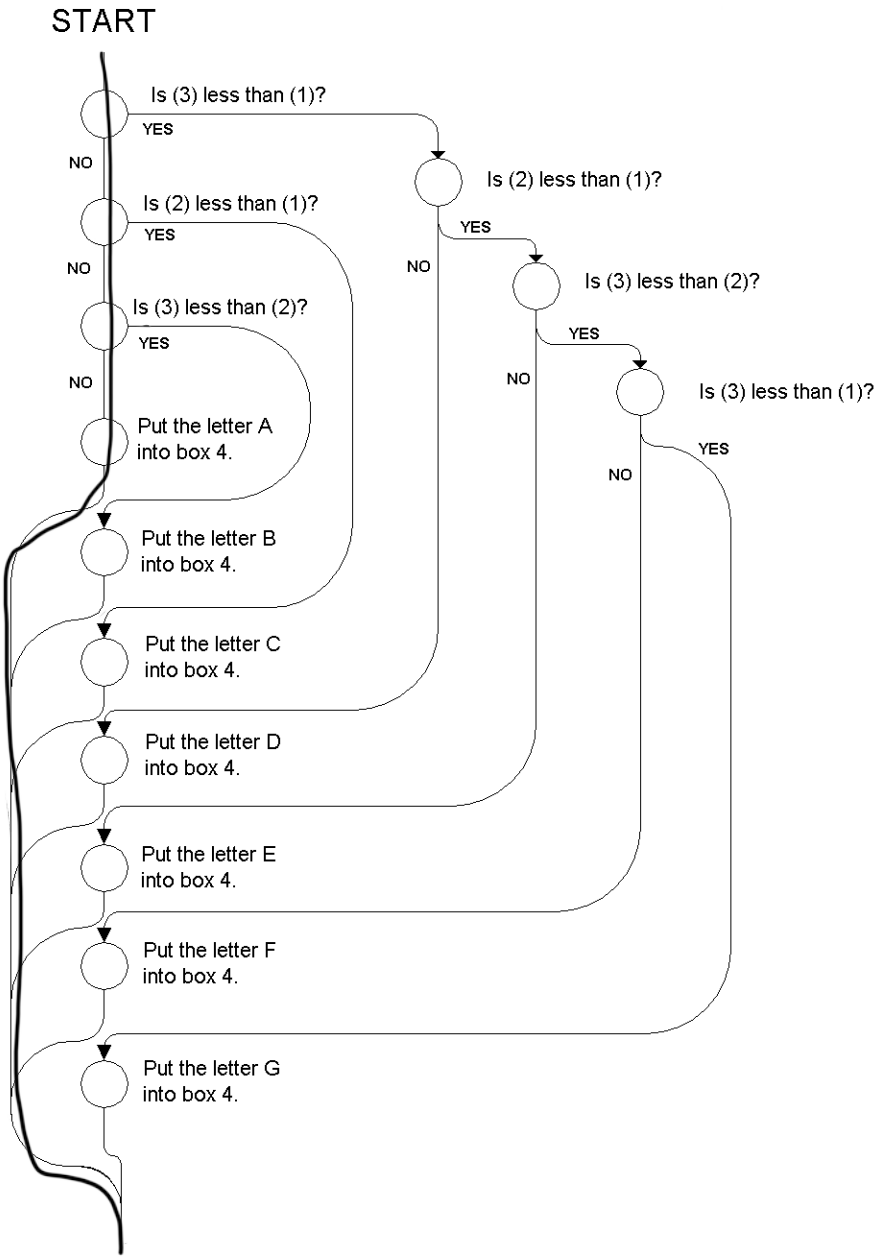
In these problems, the expression (number in box X) is abbreviated as (X).

For Example: "Is (4) greater than (7)?"
means "Is (number in box 4) greater than (number in box 7)?"

In each of the following problems, no two boxes contain the same number.

TURN THE PAGE AND CONTINUE

Problem 8



$3 \geq 1$

$2 \geq 1$

$3 \geq 2$

$3 \geq 2 \geq 1$

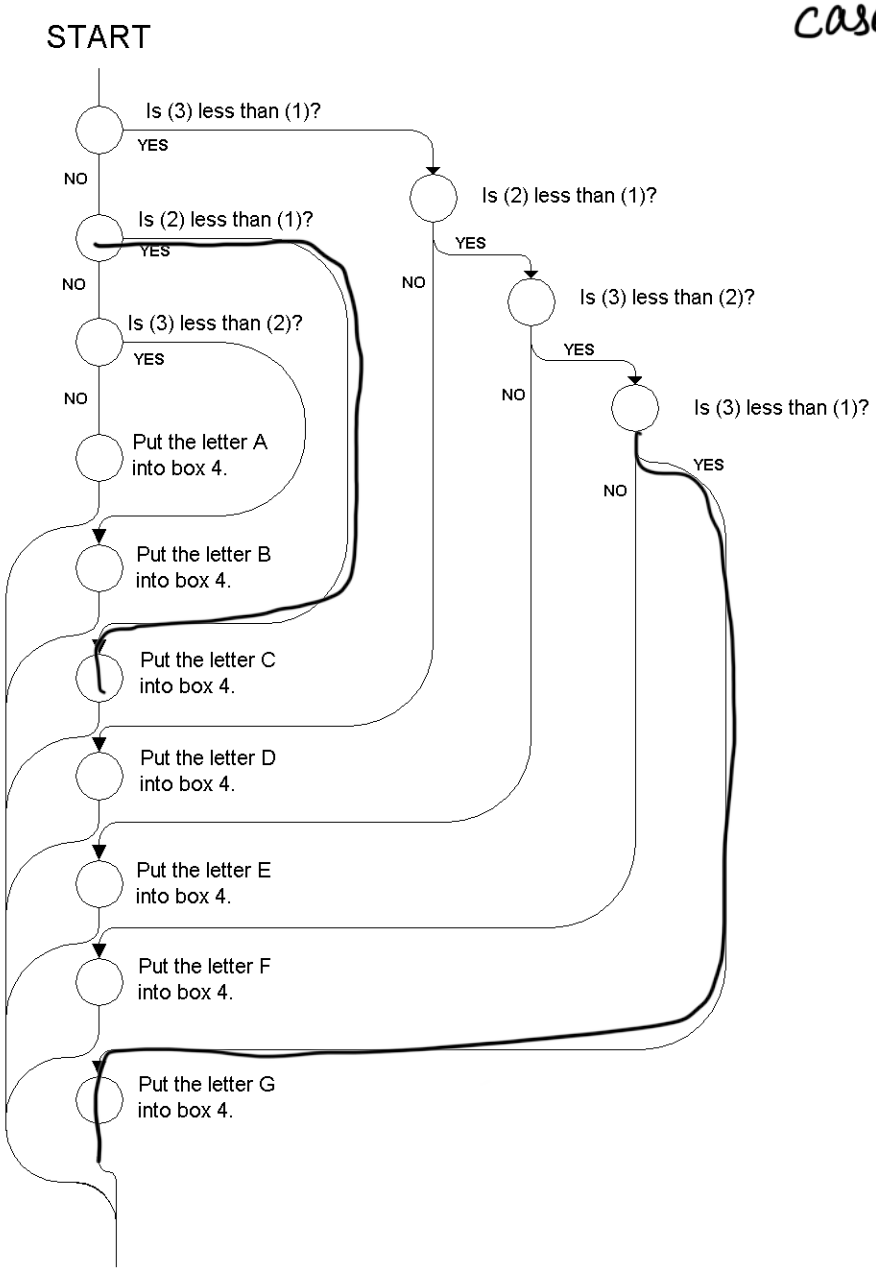
END **The letter A is now in box 4.**

Which of the boxes 1, 2, 3,contains the largest number? 3

the smallest number? 1

except when the equality condn holds true

Problem 9



case 1: $3 \not< 1$

$1 < 2$

$3 \not< 1 < 2$

case 2:

$1 < 3$

$1 < 2$

$2 < 3$

$1 < 3$

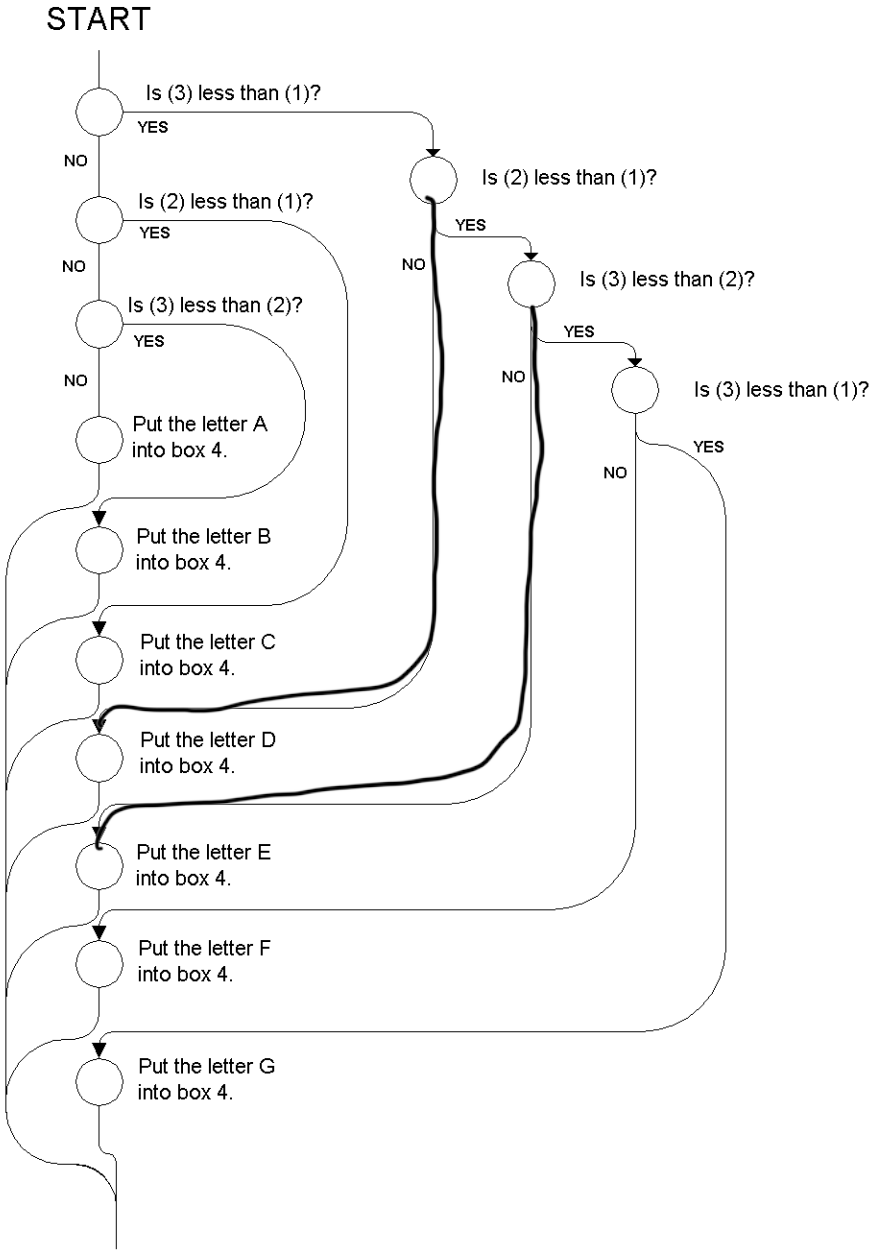
$1 < 2 < 3$

END ***Either*** **the letter C or the letter G is in box 4**

Which of the boxes 1, 2, 3, *cannot possibly* contain the largest number? 2

the smallest number? 1

Problem 10



case 1:

1 > 3

2 > 1

2 > 1 > 3

case 2:

1 > 3

1 > 2

3 > 2

1 > 3 > 2

END ***Either*** **the letter D or the letter E is in box 4**

Which of the boxes 1, 2, 3, *cannot possibly* contain the largest number? 3

the smallest number? 1

READ THESE DIRECTIONS

In the following problem, you must grasp the significance of the individual steps in the flow-chart, and correct an error which has been deliberately placed there.

In the following problem, no two boxes contain the same number.

TURN THE PAGE AND CONTINUE

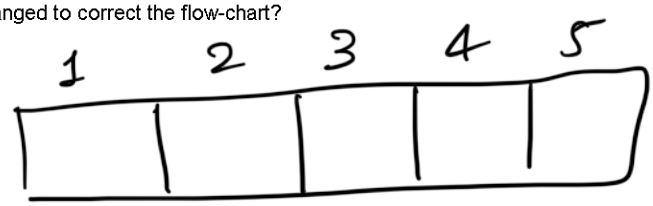
Problem 11

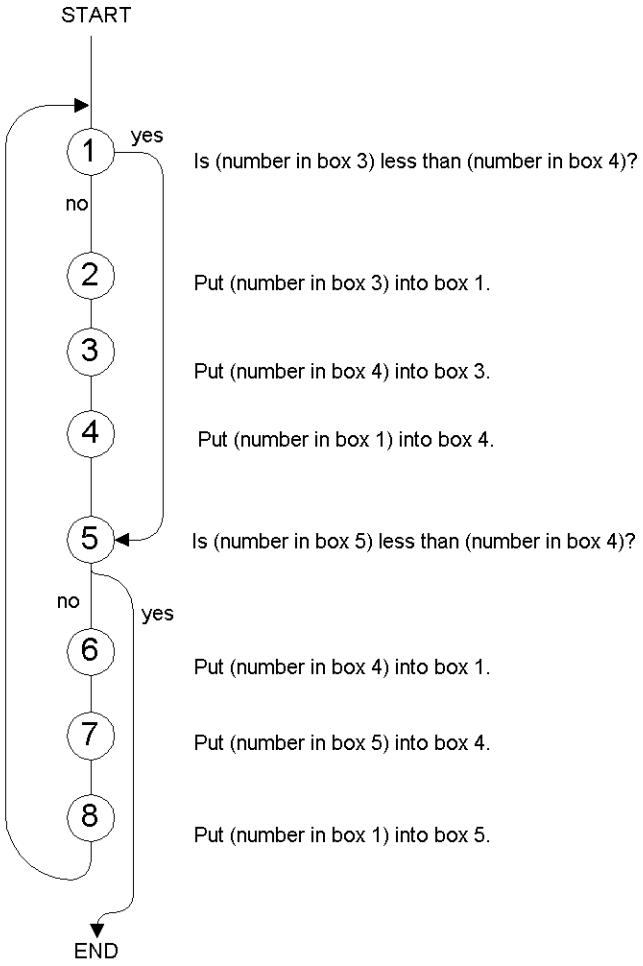
The object of the following flow-chart is to rearrange the numbers in boxes 3, 4, and 5 in such a fashion that, at the end:

Box 3 will always contain the smallest number;
Box 5 will allways contain the largest number.

However, this flow-chart is incorrect. As it stands it will not accomplish the desired purpose.

Which one Instruction must be changed to correct the flow-chart?





In order to correct this flow-chart, we must change Instruction No. 5

So that the first box-number mentioned in it is box number..... 4

and the second box-number mentioned in it is box number..... 5

corrected instruction 5 :
Is (number in box 4) less than (number in box 5)

You have now completed the exam.

Since there is no time limit on the exam, you may go back and review any of your work and/or change any of your answers.

Once you are comfortable with all of your answers and you have copied all of them to the first page correctly, you may turn in the exam for grading.

Thank you for your interest in our company!!!!!!!