Computer Skills for Medical Students
Problem Solving Part II

Pseudocode:

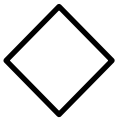
Set of English like statements used to help in solving the problem.

Write a pseudocode to find the average of three numbers (A,B,C)

1. Begin
2. Input A,B,C
3. Sum=A+B+C
4. Avg=Sum/3
5. Print Avg
6. End .

Flowchart:

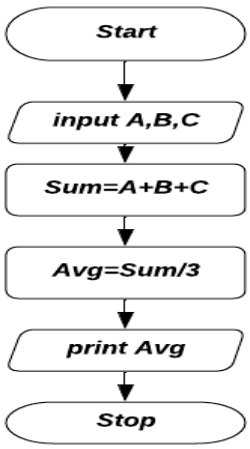
Is a structure graph which shows the steps of the algorithm.

Symbol	Functionality
	Begin/End Start/Stop
	Processing (=)
	Decision (IF)
	Input / output
	Connector
	Flowlines

Flowchart Constructs:

1. Sequence.
2. Selection.
3. Looping.

Sequence: *performs one step at a time, and follow it by the next step and so forth.*



1. Begin
2. Input A,B,C
3. Sum=A+B+C
4. Avg=Sum/3
5. Print Avg
6. End .

Selection: *performs an action only if a condition is true.*

IF ….. THEN

(*Statement(s)* will be executed if the condition is True**)**

IF condition **THEN** *Statement(s)* **END IF**	**IF** condition **THEN** *Statement(s)*

IF…. THEN …..ELSE

The **IF statement** can be of the form **IF-THEN- ELSE,** the statement(s) after **ElSE** structure will be executed if the condition is **FALSE**

IF condition **THEN** Statement(s) **ELSE** Statement(s) **END IF**	**IF** condition **THEN** Statement(s) **ELSE** Statement(s)

Example 1:

1. Start
2. Input grade
3. IF grade >=50 THEN Print “Pass”
4. Stop

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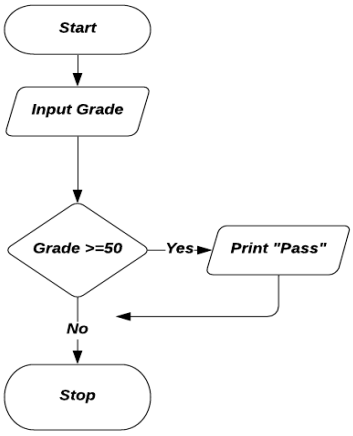
1. Find the output for the following pseudocode. (given grade = 95 or grade=35)
2. Convert to the equivalent flowchart.

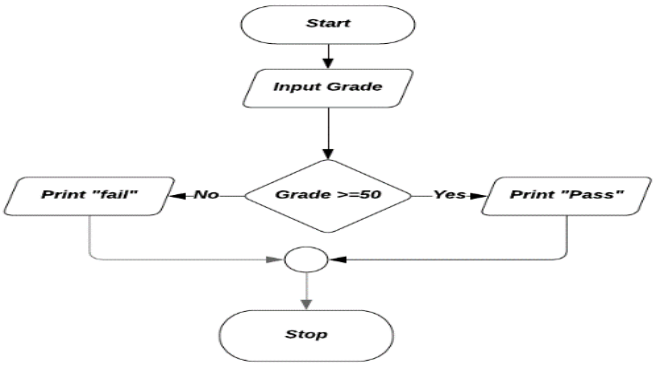


Output when grade=95:

Output when grade =35:

Example 2

1. Start
2. Input grade
3. IF grade >= 50 THEN Print “Pass” else Print “FAIL”
4. Stop

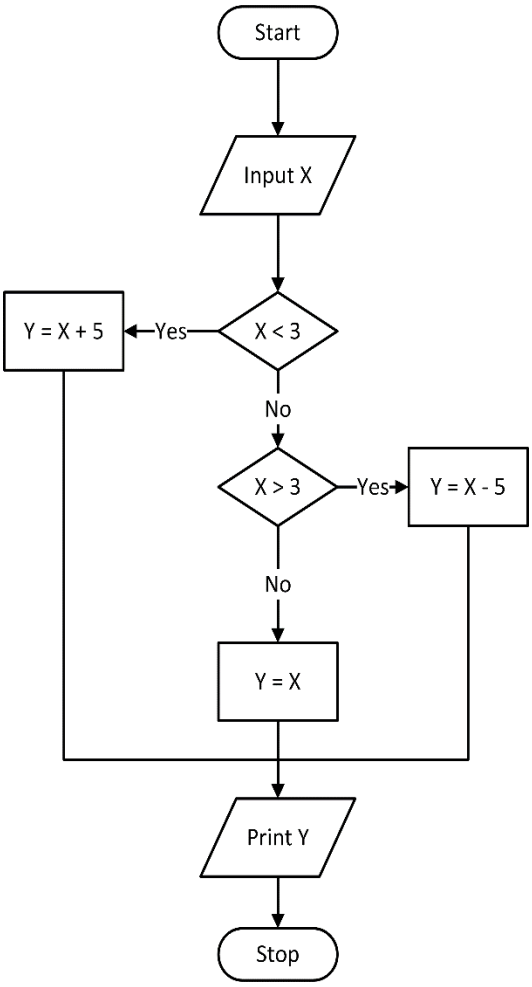


Output when grade= 95:

Output when grade= 35:

1. Find the output for the following pseudocode.

Find the output for the following flowchart:

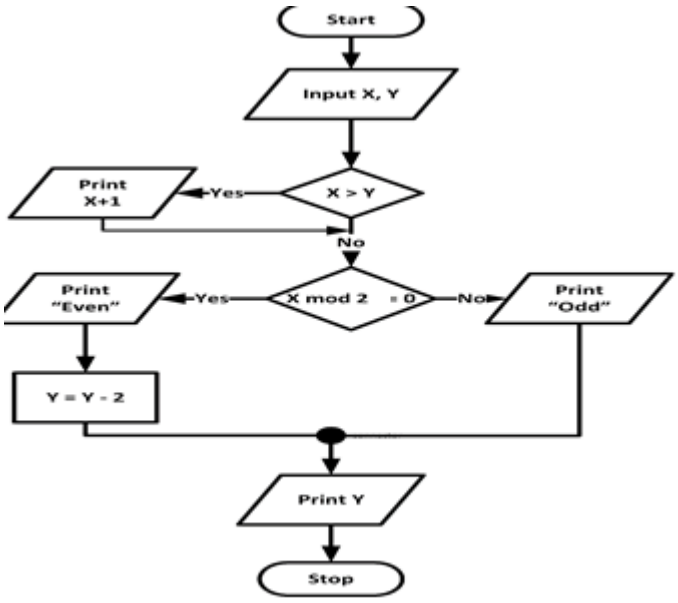


Output when x= -1

Output when x= 3

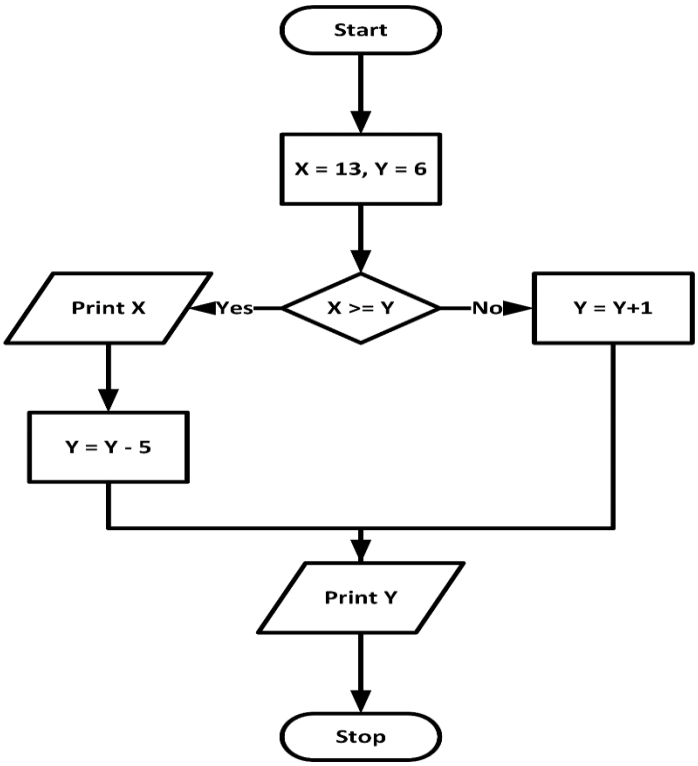
Output when x= 7

1. Convert the following flowcharts to the equivalent pseudocodes
2. Find the output for the following flowchart assume that the inputs are : 2 ,8



Output

Pseudocode :



Output

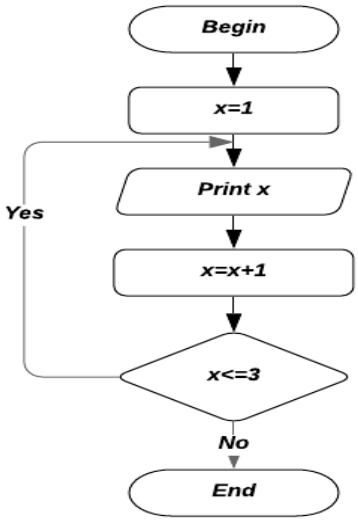
Pseudocode :

Looping : *performs the action as long as the condition is True.*

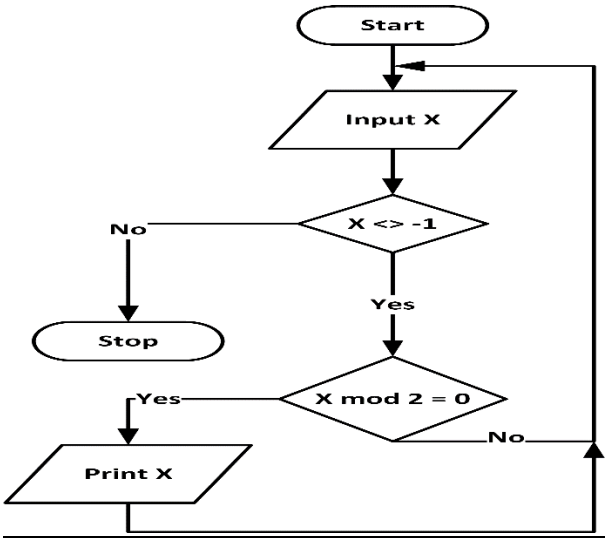
Find the output for the following pseudocode:

1. Begin
2. X=1
3. Print x
4. Increment x by 1
5. If x<=3 then goto 3
6. End

Output



Find the output for the following pseudocode, given the following input: 3, 4, 5, 6,-1



Output

Find the output for the following pseudocode:

1. Start
2. Sum=0,x=2
3. Sum=sum + x
4. Increment x by 2
5. If x <=4 then goto 3
6. Print sum
7. Stop

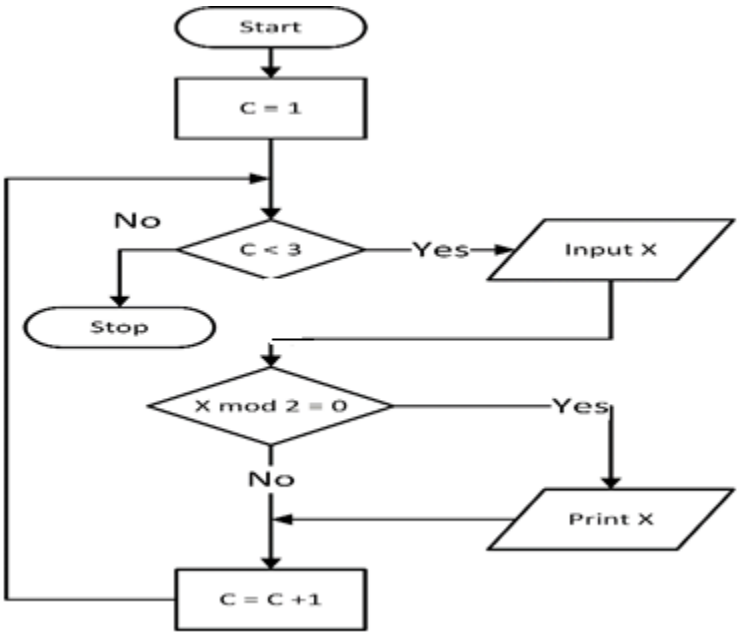
Output

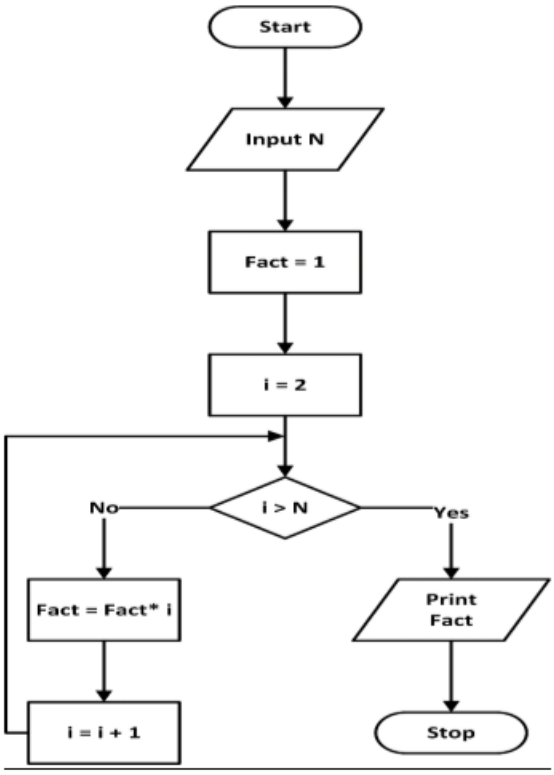
Find the output for the following pseudocode Assume the inputs are: 3,4,6,5

1. Begin
2. C=1
3. If c< 3 then input x else goto 7
4. If x mod 2 = 0 then print x
5. c=c+1
6. goto 3
7. end

Output

Draw the equivalent flowchart:





Output

N=3

N= 0

1. find the output given N=3
2. find the output given N=0
3. Convert the flowchart to the equivalent pseudocode.

Pseudocode :

1. Increment X by 3 → x=x+3
2. Divide c by 10 → c=c/10
3. Multiply z by 4 → z=z*4
4. Decrement m by 6 → m=m-6