Assignment 1

1) Check the given No is even or odd.

```
        ( Start )
            |
            v
   / Read int num /
            |
            v
   | result = num % 2 |
            |
            v
          / if \
    yes  < result=0 >  No
    /     \       /     \
   v       \     /       v
            
| print even |        | print odd |
        \                 /
         v               v
           ( end )
```

② Try a program to find the factorial of given No

```
                    ( Start )
                        |
                        v
    [ read fact = 1, int i, int num = 5 ]
                        |
                        v
// initilize      [ i = 1 ]
                        |
                        v
                       / \
// condition      / i <= num \ ----NO---->
                   \         /            |
                    \ /                    |
                     | yes                 |
                     v                     v
// statment  [ fact = fact * i ]   [ print fact ]
                     |                     |
                     v                     v
// increment <--- [ i++ ]            ( end )
```
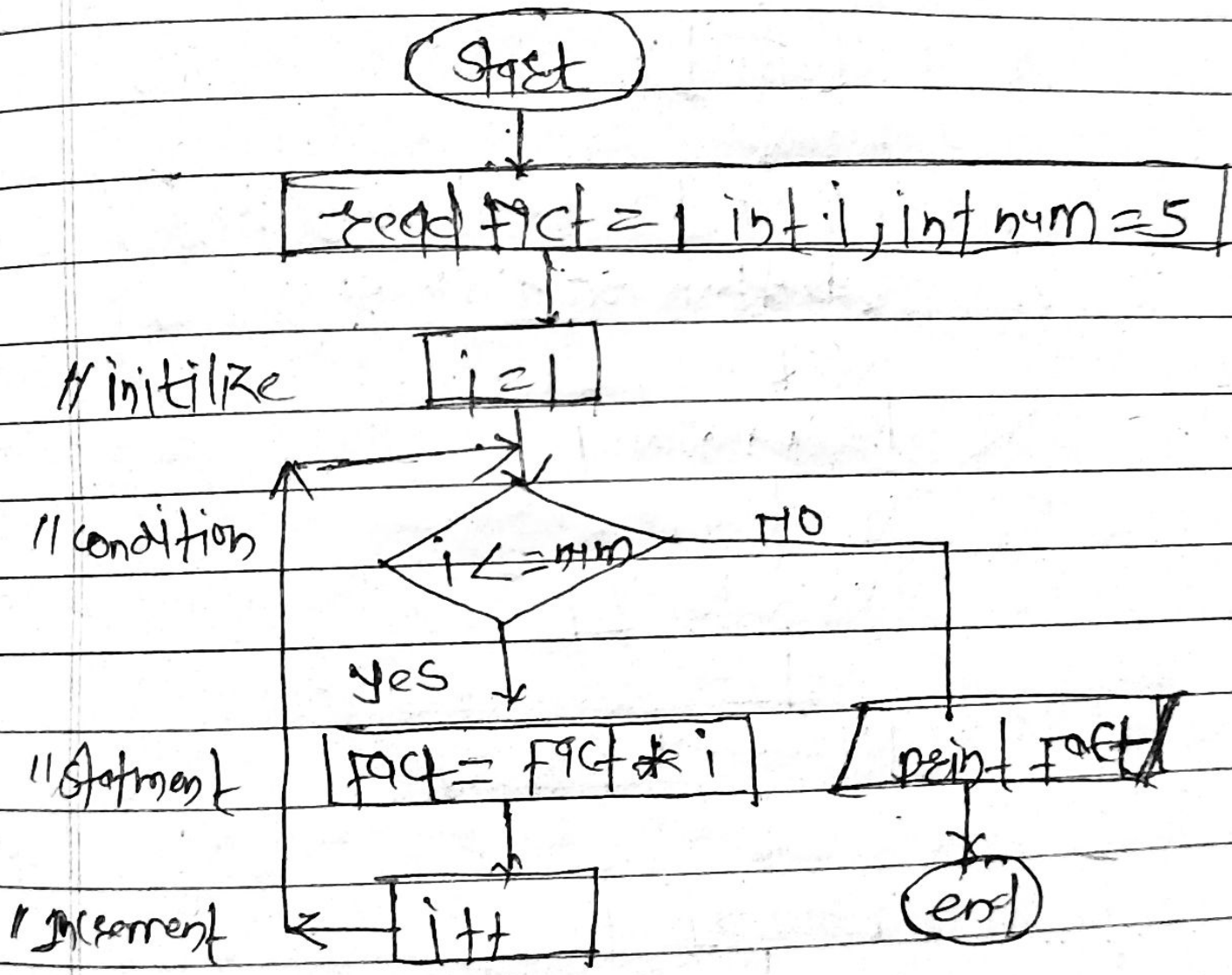
4) Swap 2 nos without using 3rd variable approach
let number are 25 and 23.

```
        ( Start )
            |
            v
 / print "Enter greater no first /
 /   & then smaller no          /
            |
            v
      [ read x, y ]
            |
            v
      [ x = x + y ]
            |
            v
      [ y = x - y ]
            |
            v
      [ x = x - y ]
            |
            v
     / print x, y /
            |
            v
        ( end )
```
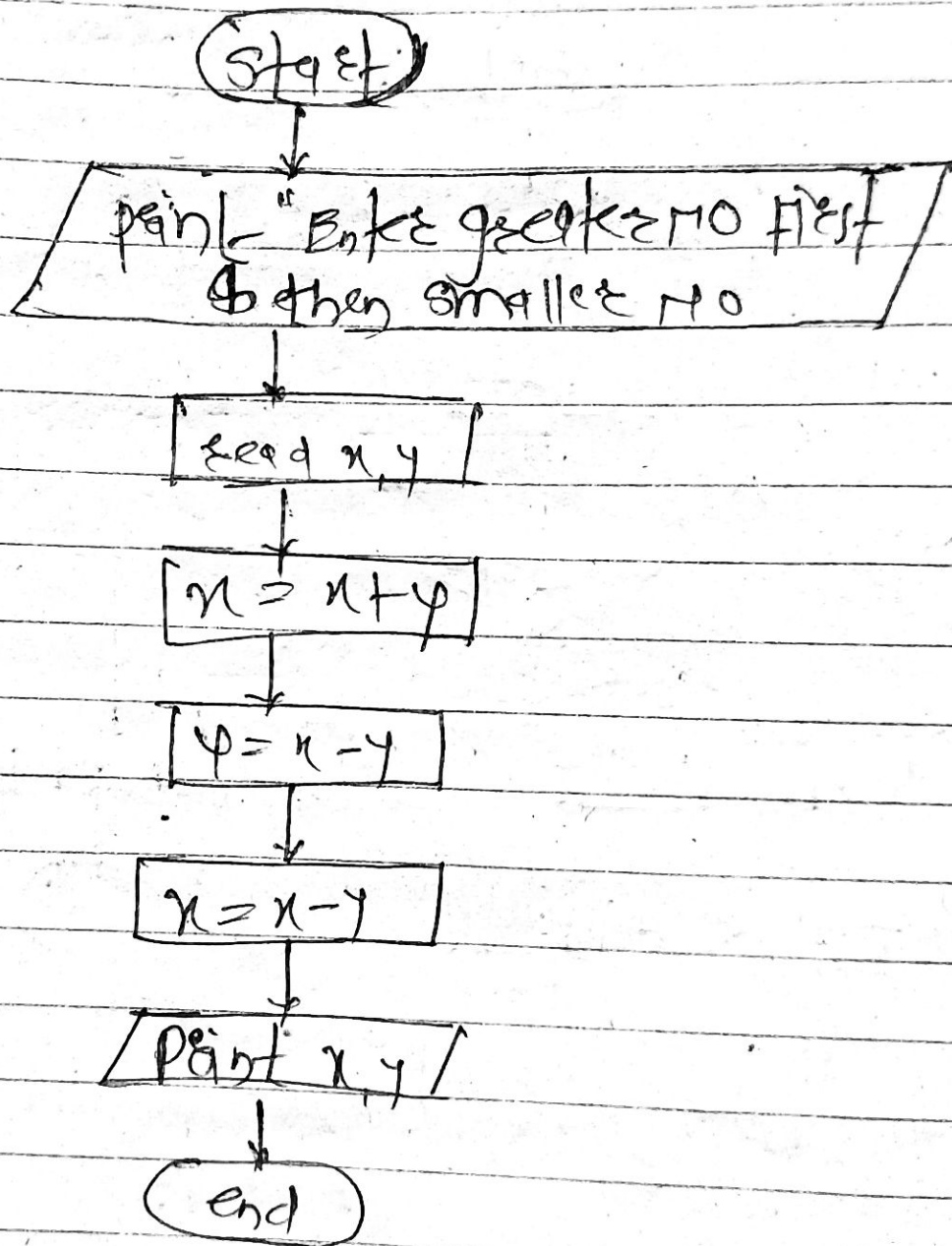
5) How to check weather the given no. is +ve or -ve in java?
  — let the given no is x.

```
        ( Start )
           |
          / x /
           |
      [ Read = x H ]
           |
          / If \
         / Read x \
        /         \
     F /           \
      /             \
  / +ve no /      / -ve no /
      |               |
       \   ( end )   /
```
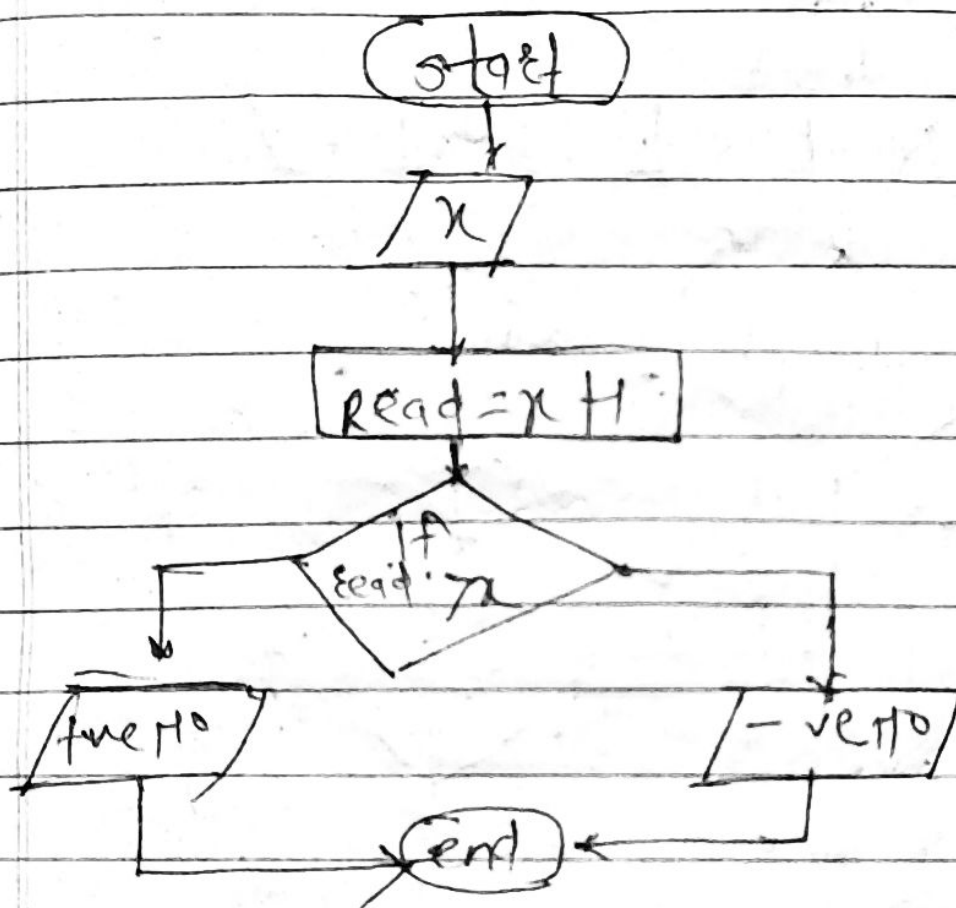
6) write a given program to find weather a given no is leap year or not.

=>

```
        ( Start )
           |
         / year /
           |
  true  / If( year%.4 == 0 and year/100 != 0) /
      /                                        |
  / print  /                              / print
  /leap year/                             / Hankar you /
      |                                         |
       _____( Stop )_____/
```

g) Write a p Java program to print all the factor of the given number

Start

Read count = 1 number

Count <= NO ——— True

False

NO % count = 0

False

count output

End
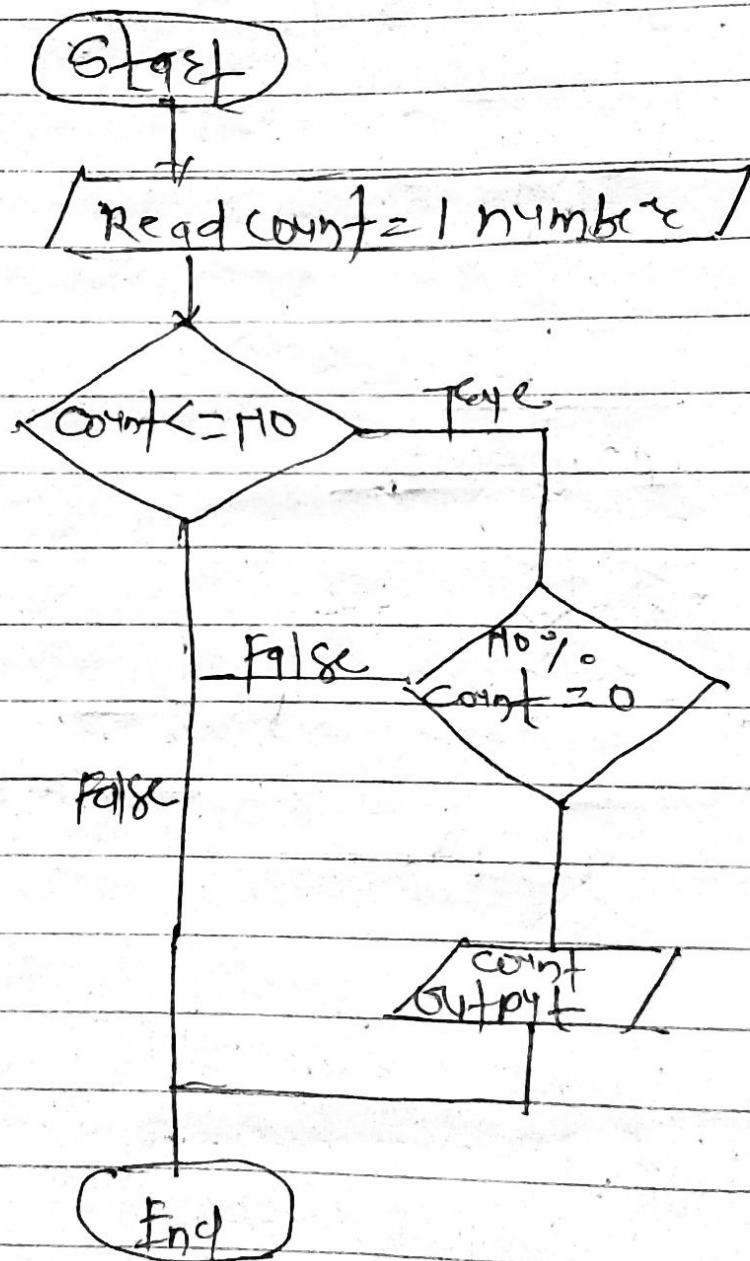
10) Write a program to find the sum of all the digits of a given No.

→
```
        ( start )
           |
       / Read Num /
           |
        [ Sum = 0 ]
           |
   ┌─────────────────────┐
   │  Rem = num % 10      │
   │  Sum = Sum + Rem     │
   │  Num = Num / 10      │
   └─────────────────────┘
           |
         < if
           Num > 0 >
           |
    / Display Sum /
           |
        ( End )
```
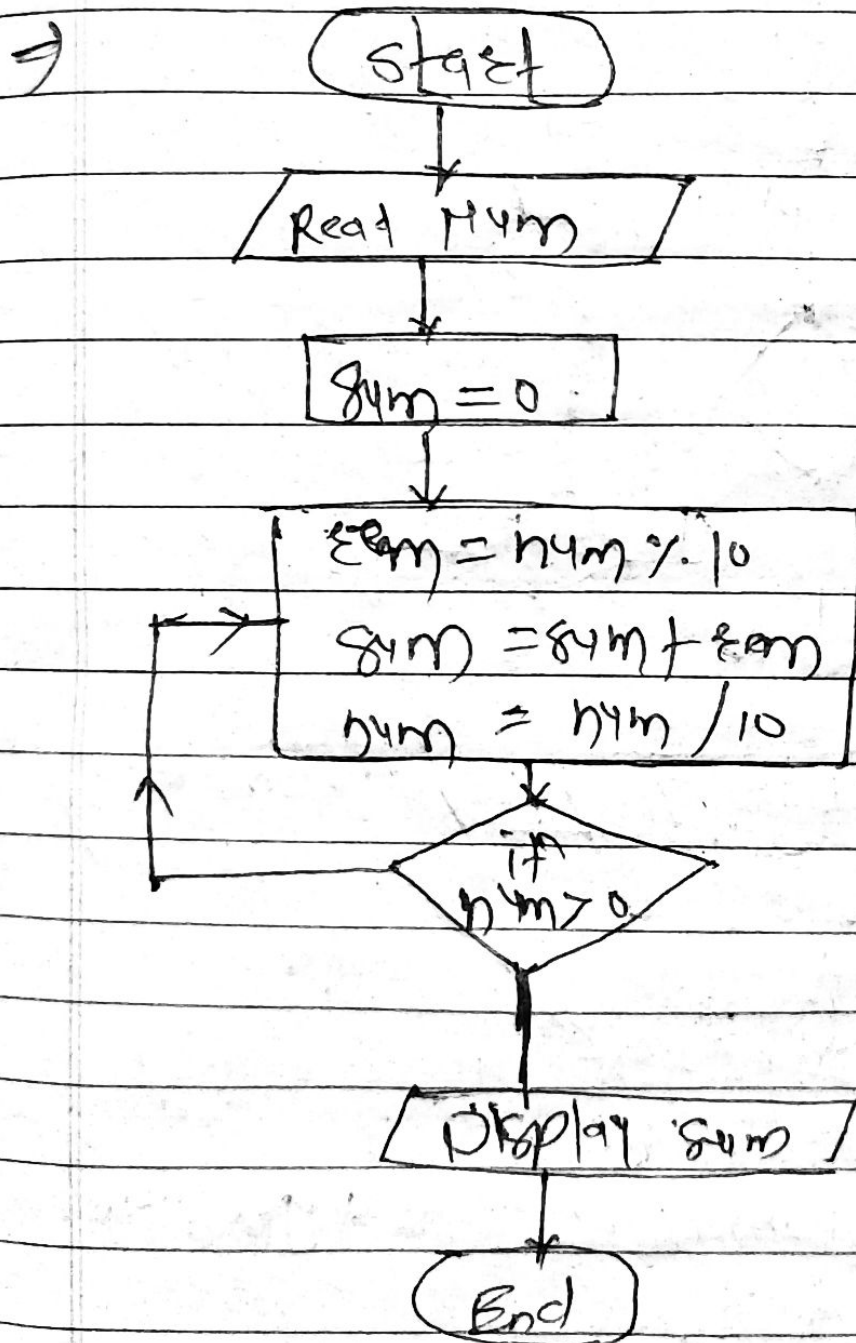
11) Write a Java program to find the smallest of the three number.

```
                        ┌─────────┐
                        │  Start  │
                        └─────────┘
                             │
                    ╱────────────────╲
                    │   Read a,b,c    │
                    ╲────────────────╱
                             │
                          ╱─────╲
                         │ a < b │
                          ╲─────╱
                    yes               No   ╱─────╲
                  ╱─────╲                 │ b < c │
                 │ a < c │                 ╲─────╱
                  ╲─────╱

   ╱──────────╲      ╱──────────╲        ╱──────────────╲
  │  A is      │    │  B is      │      │  c is smallest │
  │  smallest  │    │  smallest  │      │      No        │
   ╲──────────╱      ╲──────────╱        ╲──────────────╱

                        ┌─────────┐
                        │   End   │
                        └─────────┘
```
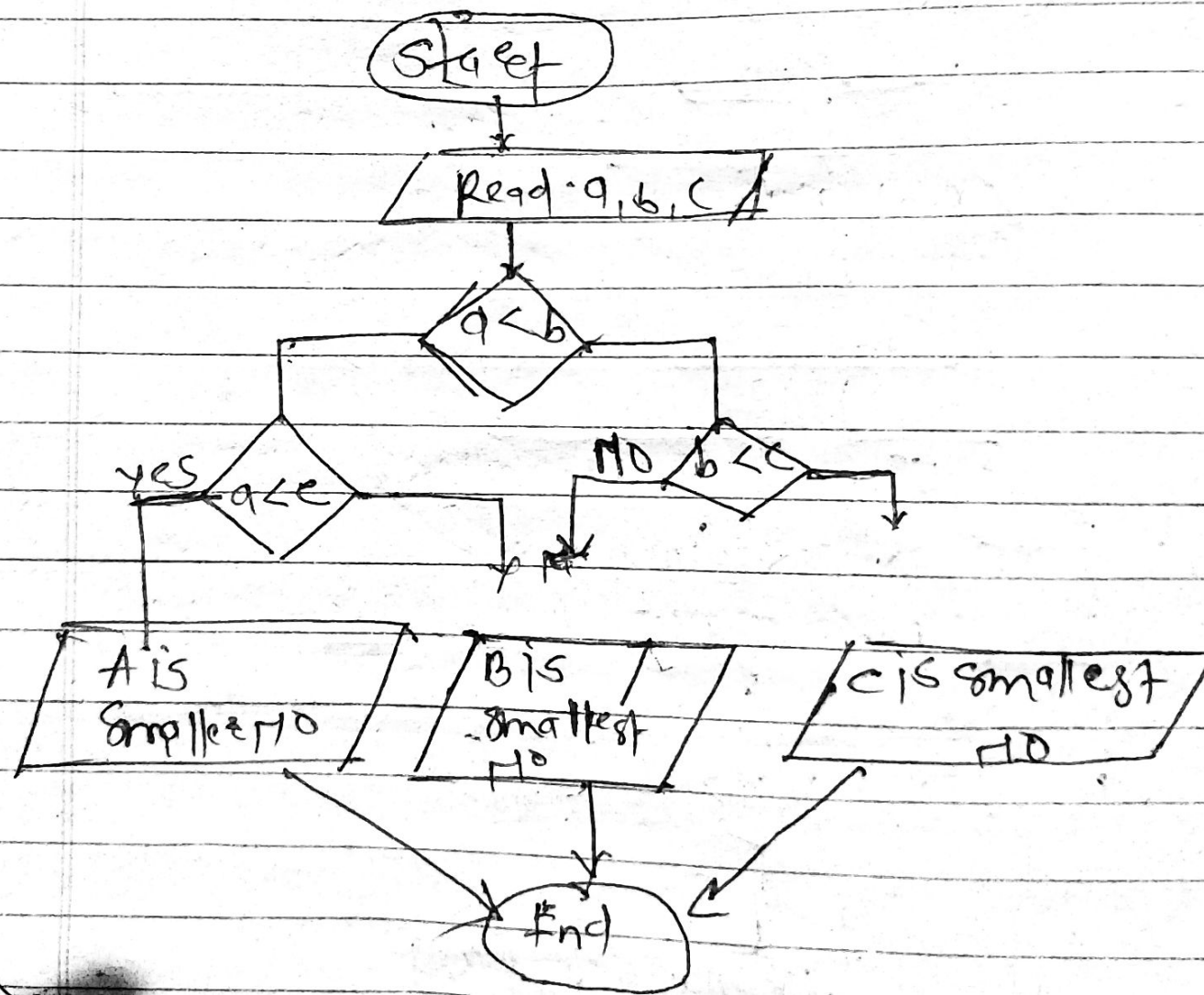
13) write a given java programm to Reverse a given no.

=>

```
Start
  ↓
Read no
  ↓
sum = 0
  ↓
Rem = sum % 10
sum = sum × 10 + Rem
num = num / 10
  ↓
if num > 0
  ↓
Display rev no
  ↓
Stop
```
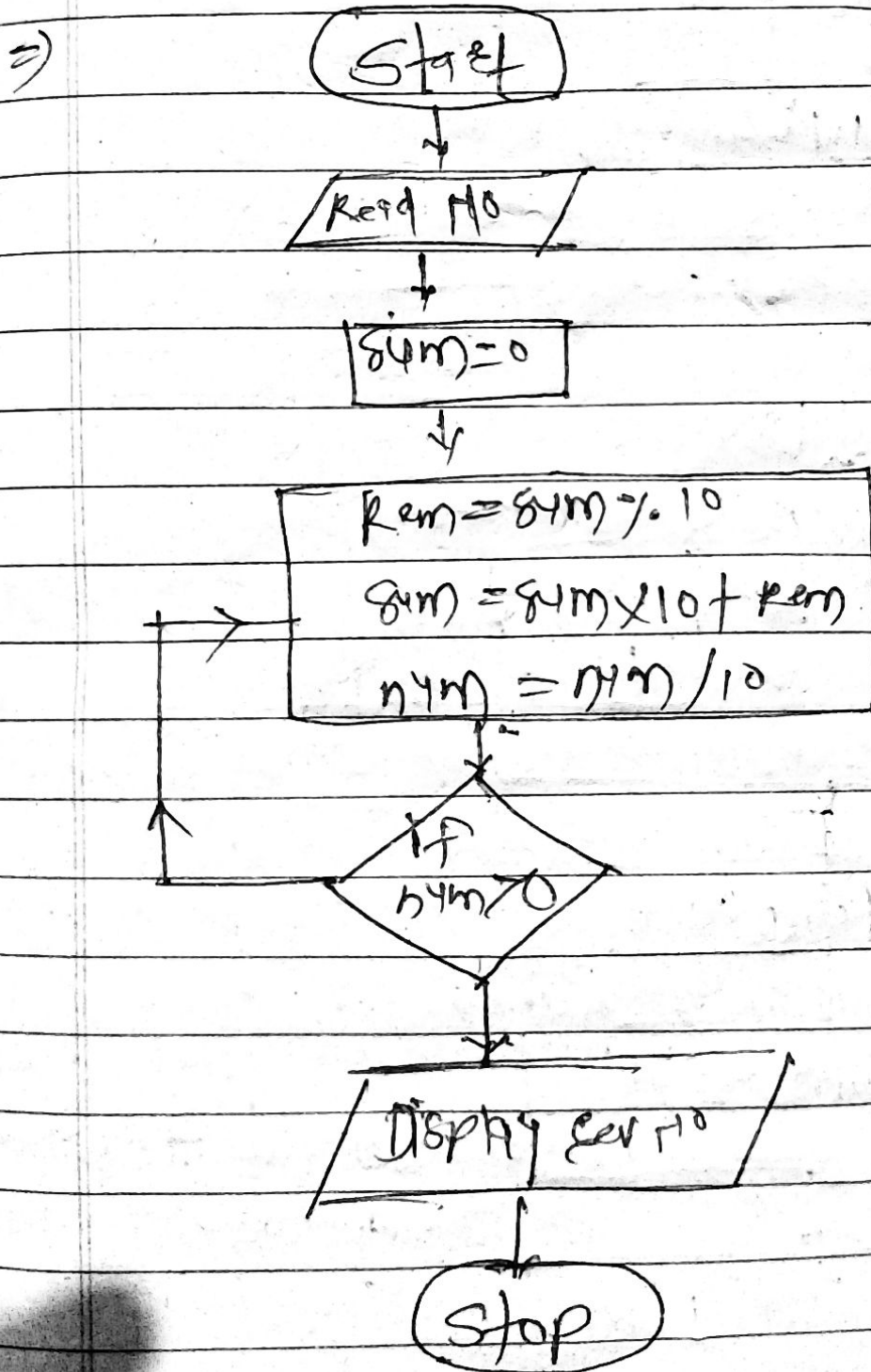
15] write a program to find LCM of two num.

```
              ┌─────────┐
              │  Start  │
              └─────────┘
                   │
              ╱─────────────╲
             ╱ Read n1, n2,  ╲
            ╱─────────────────╲
                   │
                  ╱╲
                 ╱  ╲
                ╱ n1=n2╲
                ╲      ╱
                 ╲    ╱
                  ╲  ╱
                   │ false
                  ╱╲
        True     ╱  ╲    false
      ┌─────────╱ n1>n2 ╲─────────┐
      │         ╲      ╱          │
      │          ╲    ╱           │
      ▼           ╲  ╱            ▼
┌──────────────┐             ┌──────────────┐
│  n1 = n1 - n2│             │  n2 = n2 - n1│
└──────────────┘             └──────────────┘
      │                           │
      └───────────┬───────────────┘
                  │
            ┌─────────────┐
            │  Print GCD  │
            └─────────────┘
                  │
            ┌─────────────────┐
            │  Lcm = n1, n2    │
            │      GCD         │──→ greatest common
            └─────────────────┘        divisor.
                  │
            ┌─────────────┐
            │  Print Lcm  │
            └─────────────┘
                  │
              ┌─────────┐
              │   End   │
              └─────────┘
```
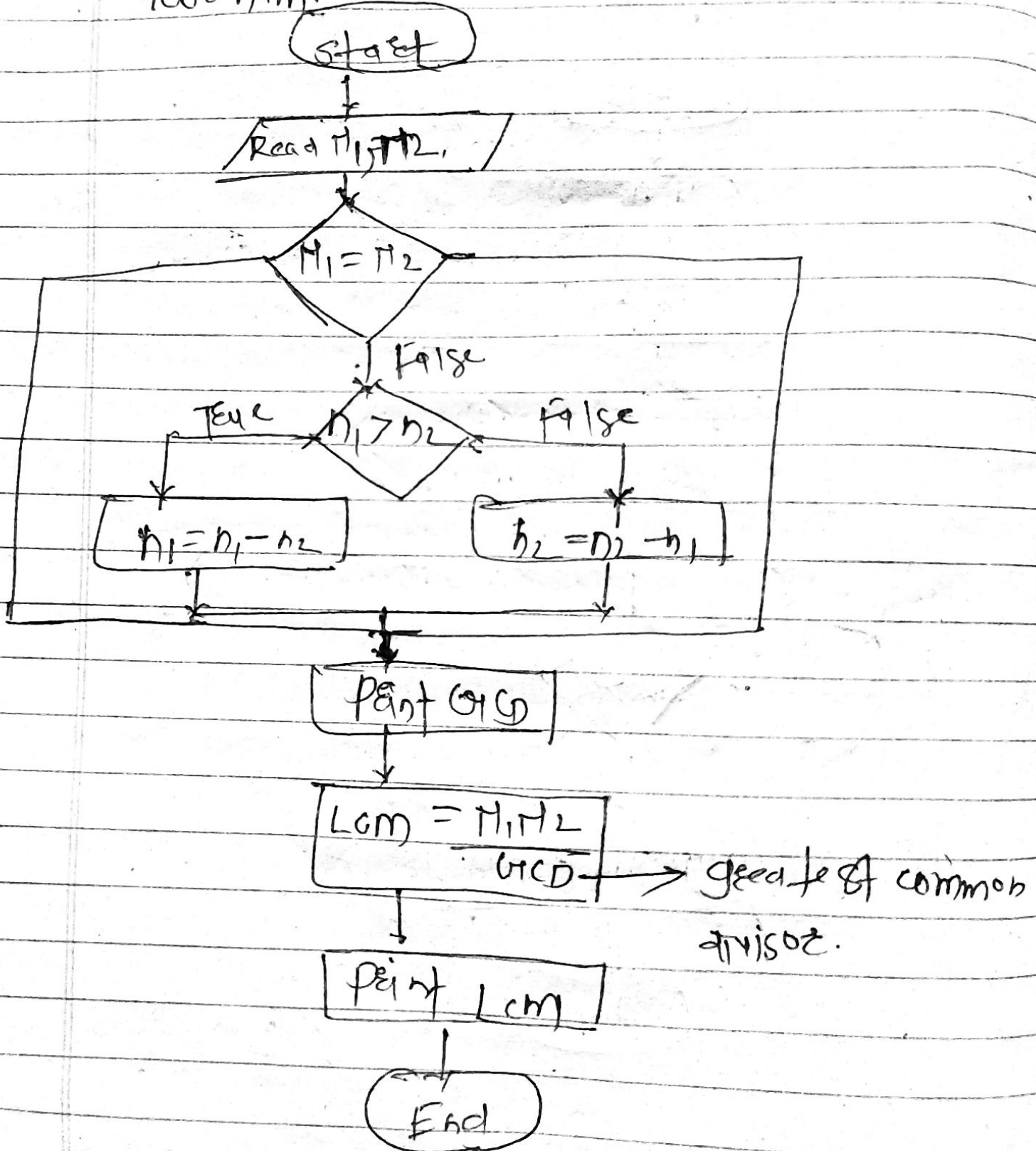
(Q.20) To print the following odd no gates.

=>

Start

Read N

Set i=1

if
i > n   Yes

NO

if i%2==1   yes → Print i

NO

i = i+1

Stop
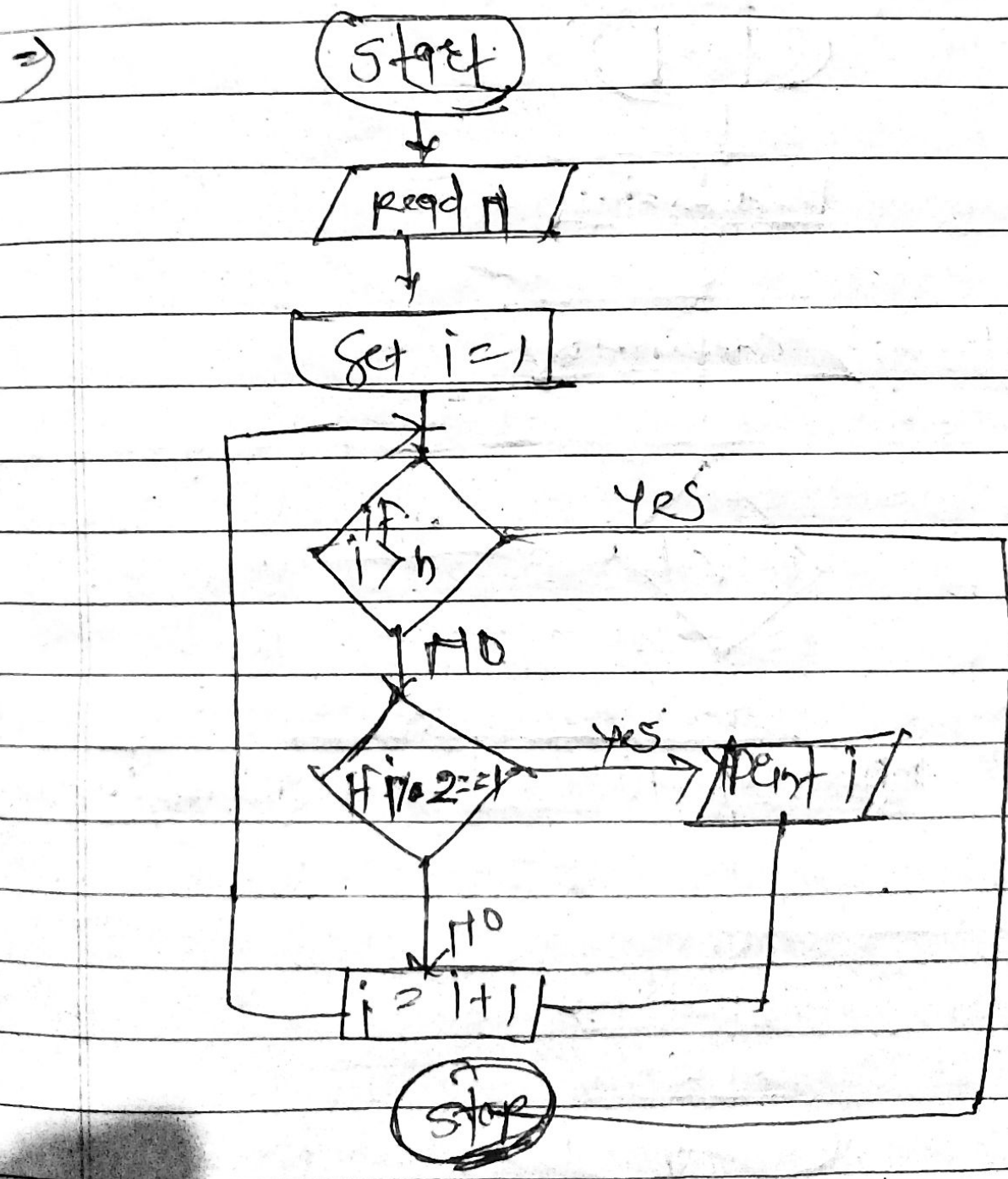
3) 4) Factorial using recursion.

```
        ( Start )
            |
      [ Factorial ]
            |
Fact(No-1)  / Get a No /
            |
          < No > 1 >  --- No --->
            |
      | Fact = No × Fact(No-1) |    / Print Factorial /
            |
      / Print Factorial /
            |
        ( Stop )
```
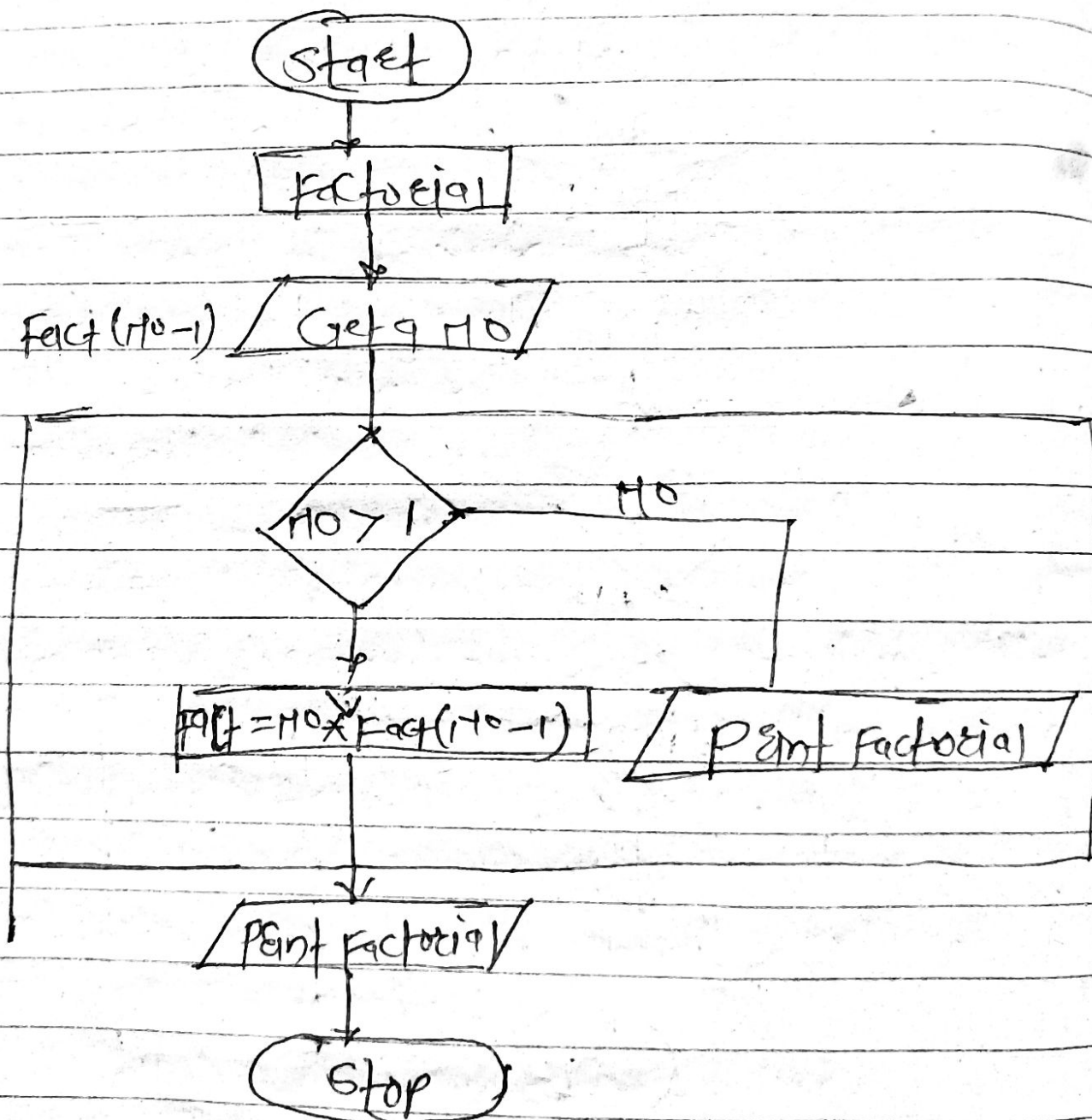
7) print 1 to 10 without loop.

⇒

```
                 ┌─────────┐
                 │  Start  │
                 └─────────┘
                      │
                 ┌─────────┐
                 │ num = 1 │
                 └─────────┘
                      │
                    ◇ num<=10 ◇ ──── NO
                      │
                      │ yes
                      ▼
              ╱ print num           ╱
             ╱ Call print(num+1)   ╱
                      │
                 ┌─────────┐
                 │  Stop   │
                 └─────────┘
```

i = 99
i > = 55 · repr.
i = i - 10
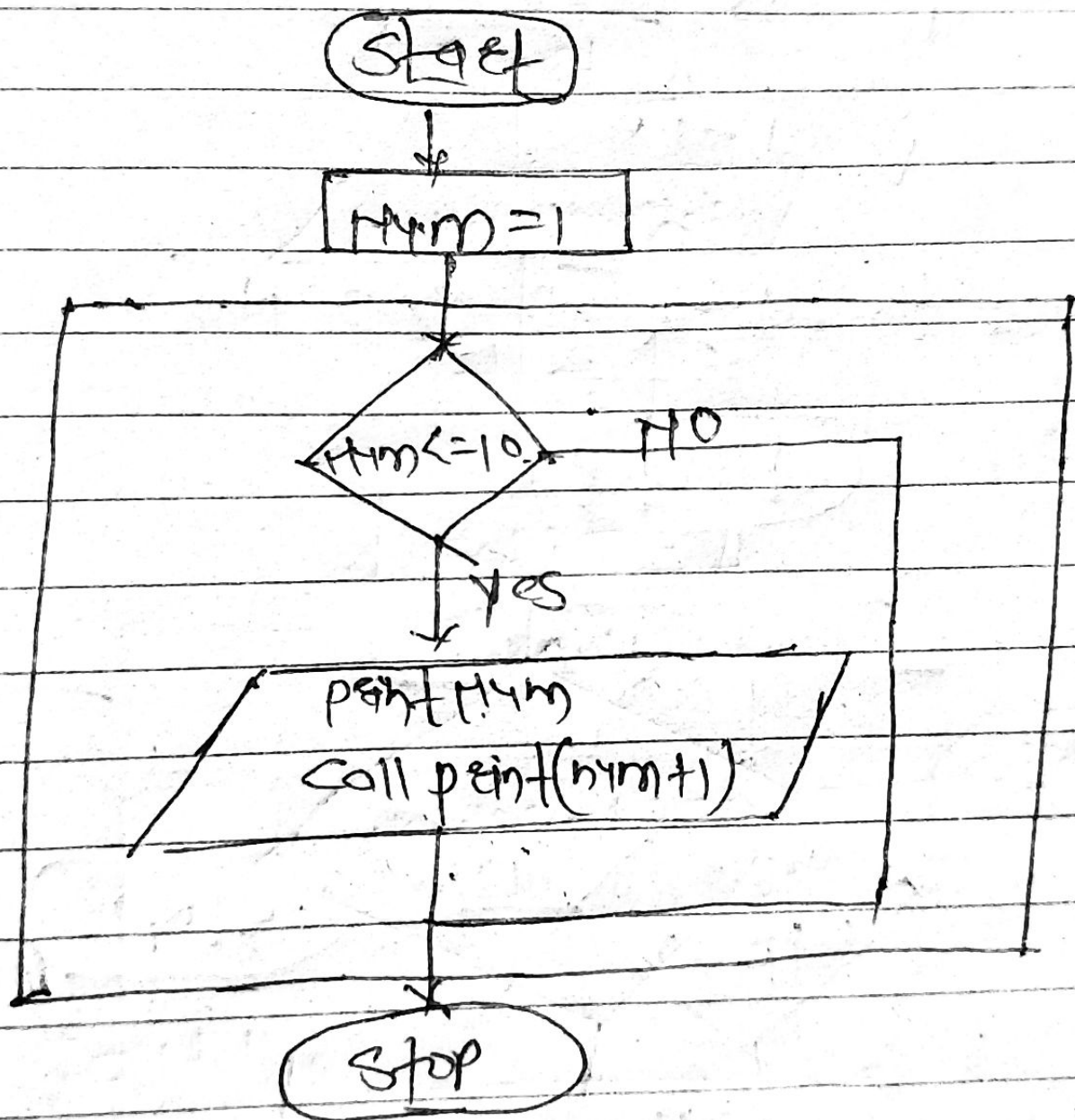
8) print the digit of given no

Flowchart:
- Start
- Get a Number (input)
- while No == 0
  - false → Stop
  - true → print No % . (output)
  - Number = Number / 10
  - (loop back to while)

14) GCD of two numbers.

```
Start
  |
  v
Get two no
Num1, Num2
  |
  v
Set gcd = 1
  |
  v
For int i = 1; i < Num1
and i <= Num2;    --- NO --->  print gcd
++i                                |
  |                                v
  | yes                          Stop
  v
if (num1 % i == 0 &&
num2 % i == 0)     --- NO --->
  |
  v
gcd = i
```
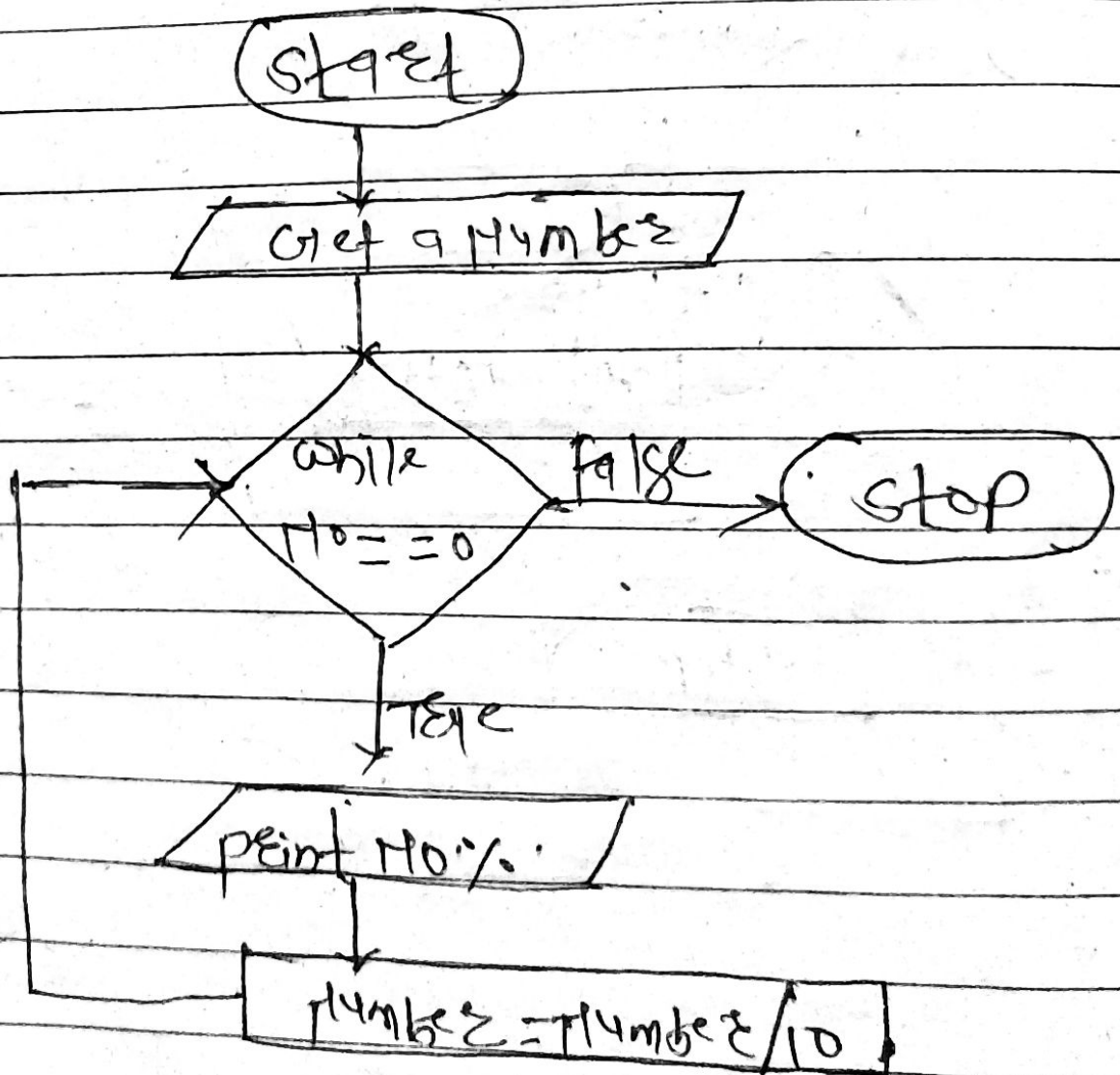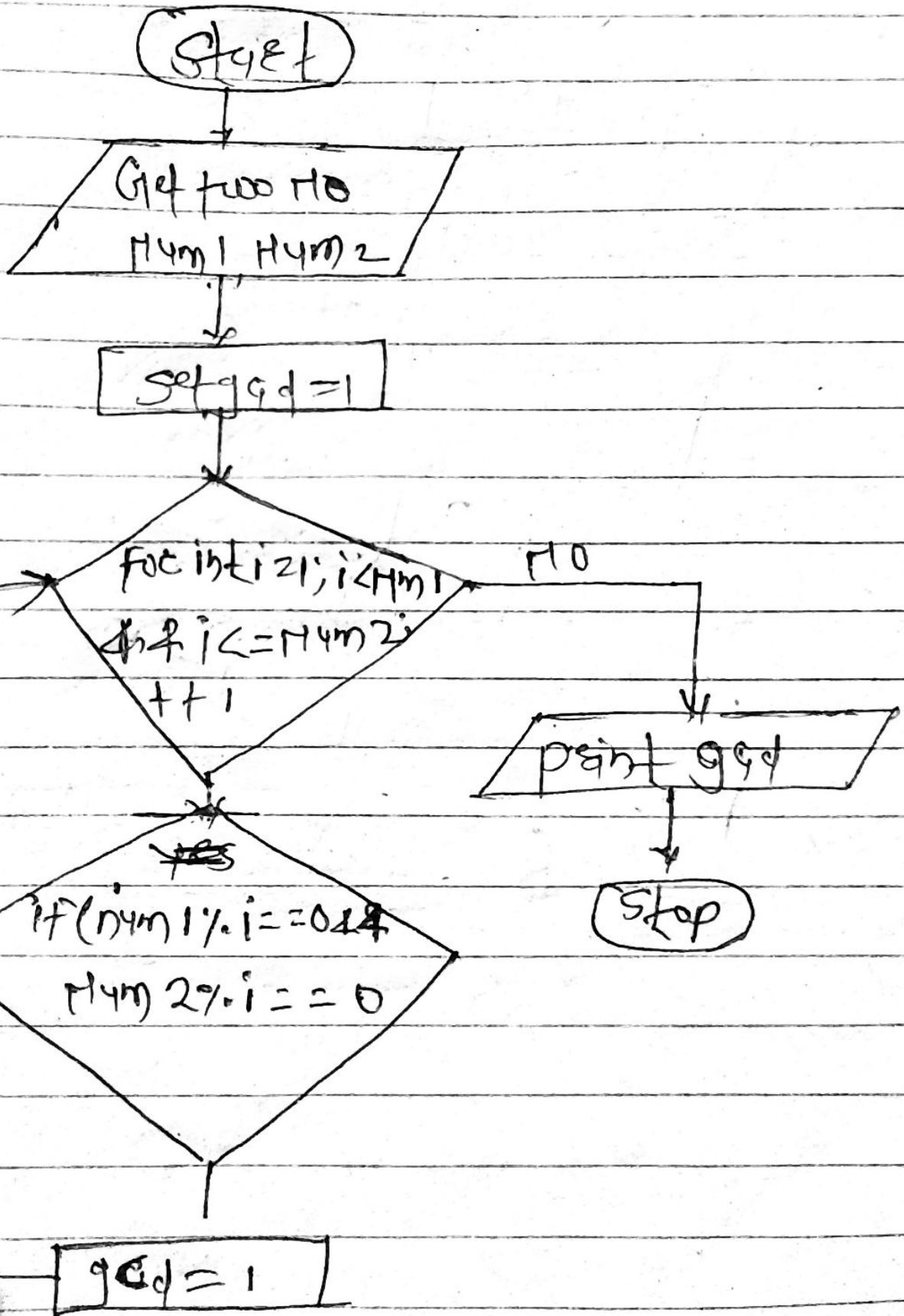
18) Prime factor of given number

```
                    ┌─────────┐
                    │  start  │
                    └────┬────┘
                         │
                ┌────────▼────────┐
                │   Get a Number  │
                └────────┬────────┘
                         │
                    ┌────▼────┐
                    │ ▤▤▤▤▤▤▤ │
                    └────┬────┘
                         │
                   ┌─────▼─────┐
                   │  set i = 2 │
                   └─────┬─────┘
                         │
          ┌──────────────▼
          │          ◇
          │        ╱   ╲
          │      ╱       ╲
          │    ◇ while(No % i == 0) ◇─────▶ ( stop )
          │      ╲       ╱
          │        ╲   ╱
          │          ◇
          │          │
   ┌──────┴──┐       │
   │ i = i+1 │   ┌───▼──────────────────┐
   └─────────┘   │   print i            │
                 │   Number = Number/i  │
                 └──────────────────────┘
```