Q.1. check Wheather given number is even or odd.

START

Enter num

num % 2 == 0

yes

number is even

number is odd

STOP.
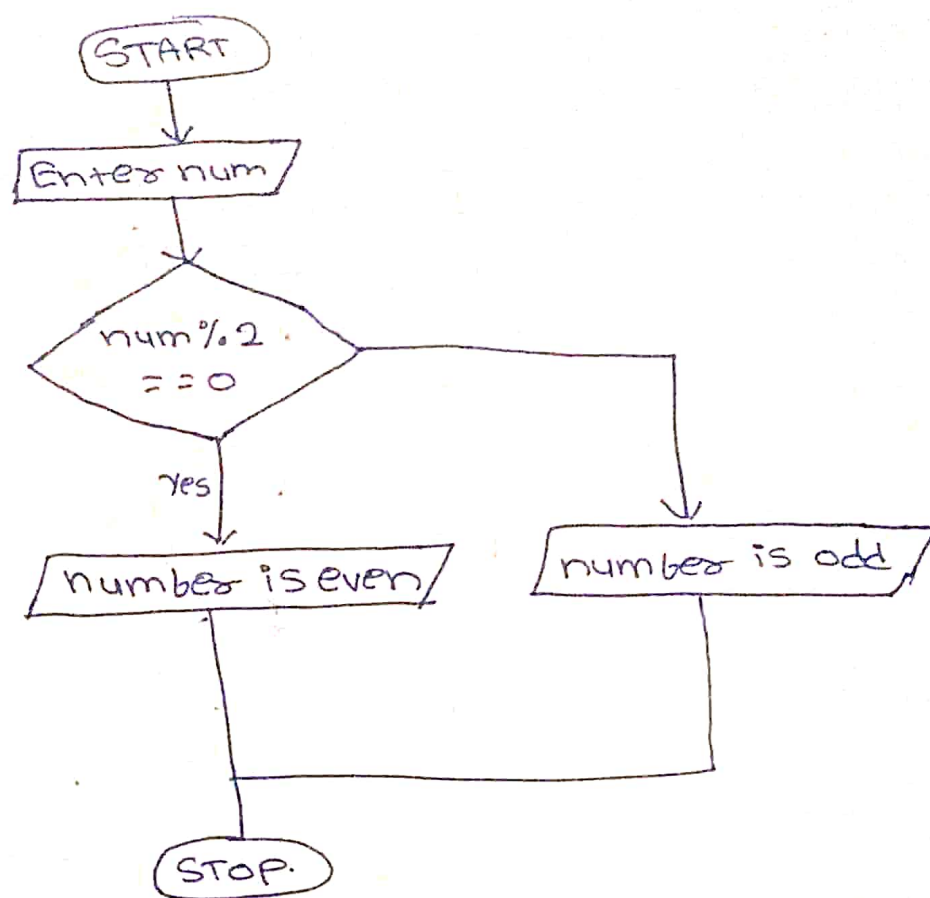
Q2. Write a java program to find factorial of a given number.

START

Enter a number

n, i, j

i = 1, n

i <= n

j = j × i

i++

Print j

STOP.
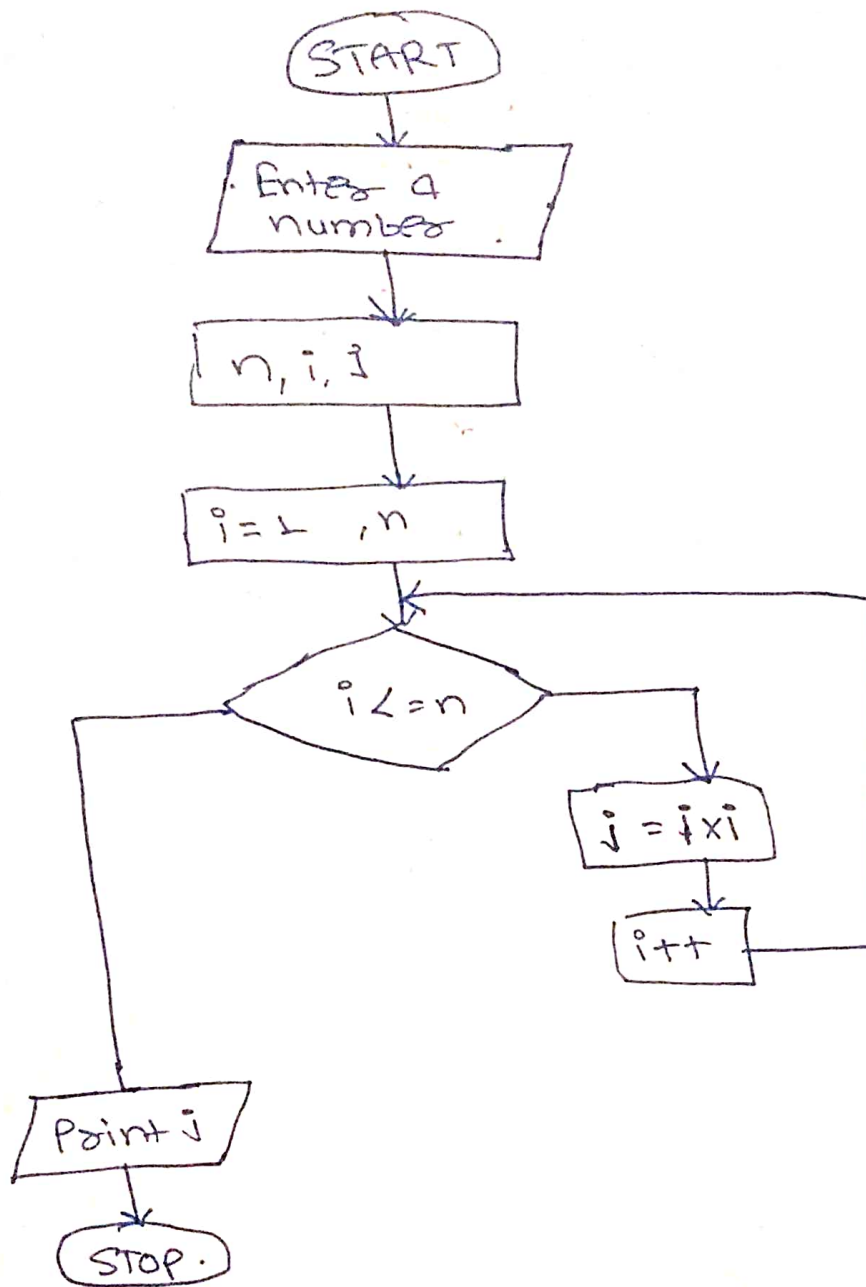
Q3 Find the factorial of a number using Recursion

```
        ( START )
            |
            v
    / Enter a number /
            |
            v
    +---------------+
    |     i = 1     |
    |    fact = 1   |
    +---------------+
            |
            v
          / i <= n \------ NO ------+
          \       /                 |
            yes                      v
            |                +---------------+
            v                |  Print fact.  |
    +---------------+        +---------------+
    | fact = fact x i |              |
    +---------------+                v
            |                     ( STOP. )
            v
        +-------+
        |  i++  |
        +-------+
```
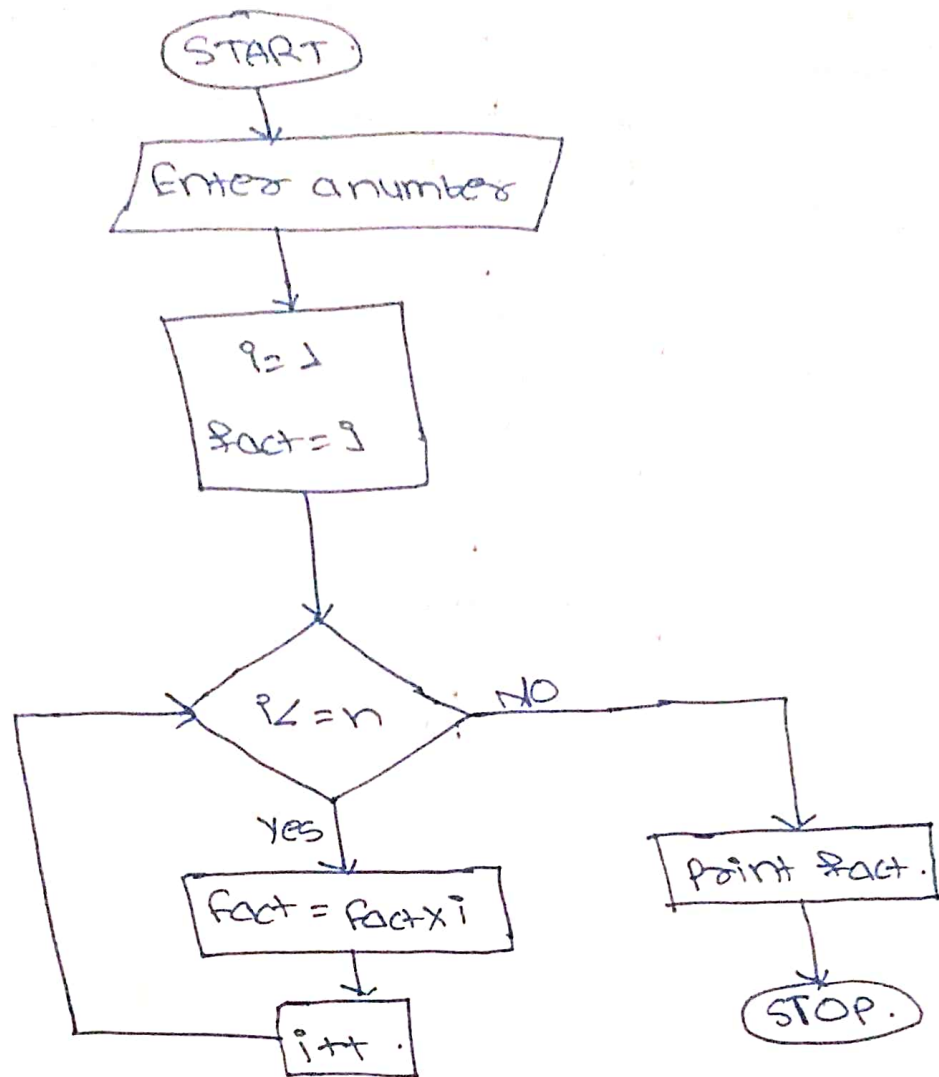
Q4 Swap two numbers without using 3rd variable

```
        ( START )
            |
            v
    +------------------+
    | Enter a,b        |
    +------------------+
            |
            v
    +------------------+
    |   a = a+b        |
    |   b = a-b        |
    |   a = a-b.       |
    +------------------+
            |
            v
    +------------------+
    | Print a & b.     |
    +------------------+
            |
            v
        ( STOP )
```
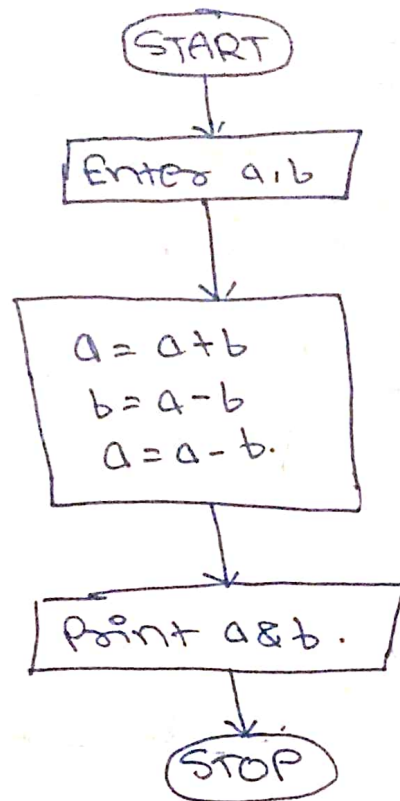
Q5 check wheather given number is positive or negative.

START

Enter the num

num?,o

yes

number is positive

number is negative

STOP
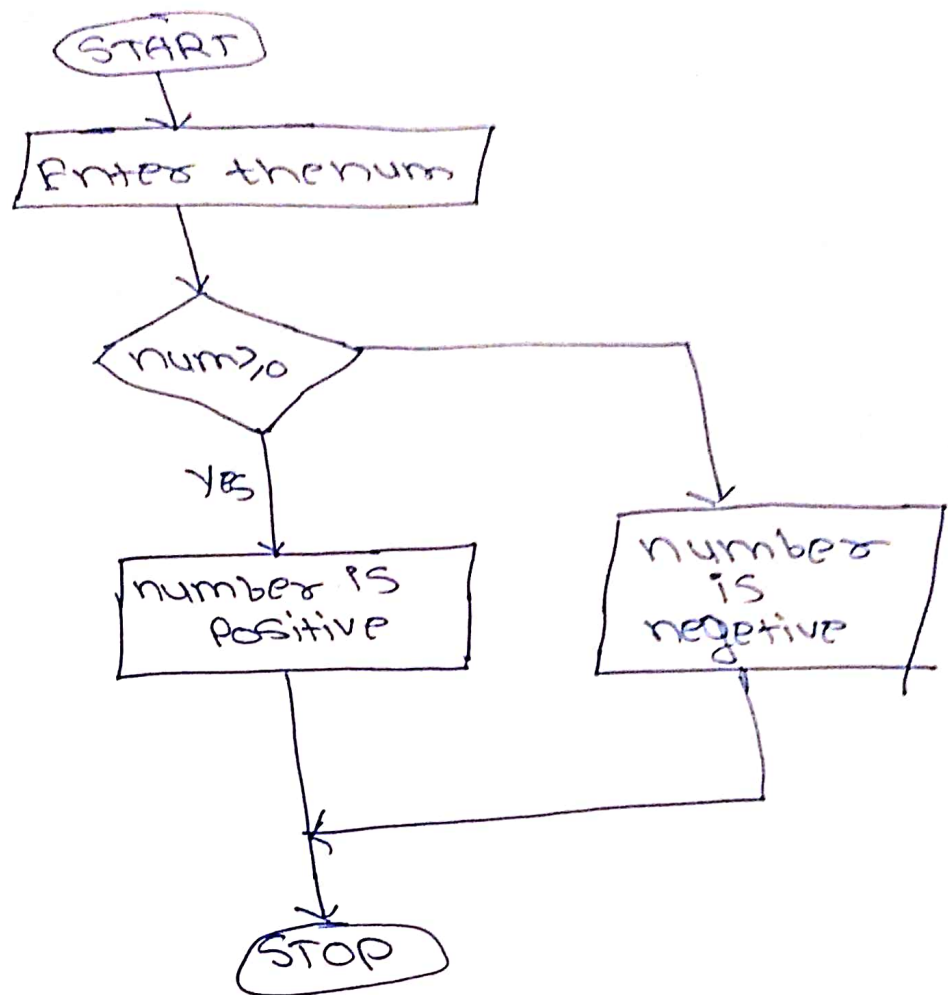
Q6. Find wheather the given year is leap year or Not

```
           ( START )
              |
              v
    ┌────────────────────┐
    │  Enter the year    │
    └────────────────────┘
              |
              v
         ╱────────╲
        ╱ (year % 4==0) ││ ╲
       ╱  (year %100==0)  ╲──────────────┐
       ╲ && (year%100!=0)  ╱             │
        ╲                 ╱              │
         ╲──────╱                        │
              |                          v
              v                  ┌──────────────┐
    ┌────────────────────┐       │ year is not  │
    │ year is a leap year│       │ a lear year  │
    └────────────────────┘       └──────────────┘
              |                          │
              v                          │
              ├──────────────────────────┘
              v
          ( STOP )
```
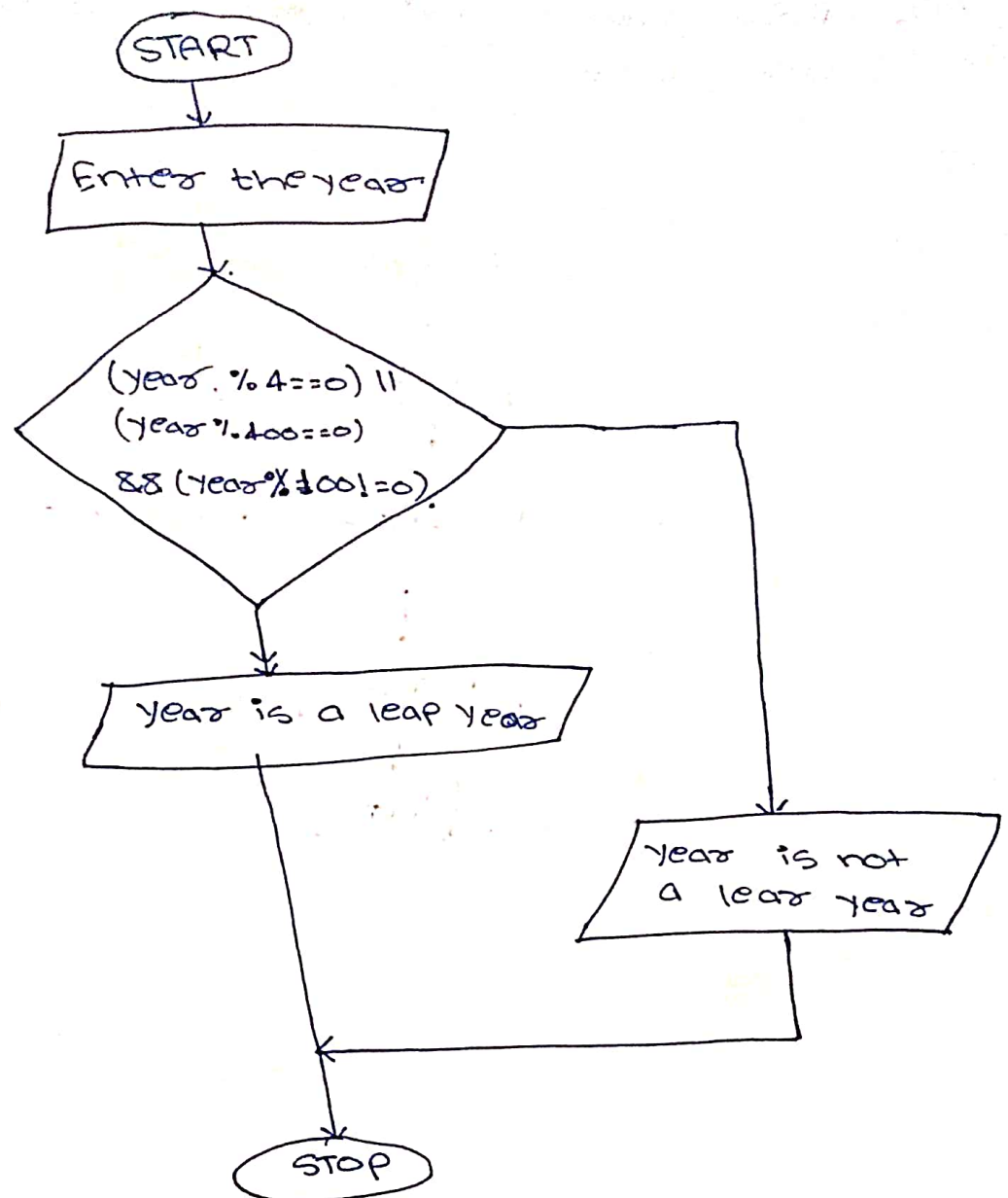
Q7. Flow chart to print number 1 to 10 without using loop.

```
        ┌─────────┐
        │  START  │
        └────┬────┘
             ↓
   ┌──────────────────┐
   │   i = 1, n = 10  │
   └────────┬─────────┘
            ↓
         ╱──────╲
        ╱ i 1 = 10 ╲──────────────┐
        ╲          ╱               │
         ╲──────╱                  │
            ↓                      ↓
   ┌──────────────┐          ┌─────────┐
   │   Print i    │          │  STOP.  │
   └──────┬───────┘          └─────────┘
          ↓
      ┌───────┐
      │  i++  │
      └───────┘
```
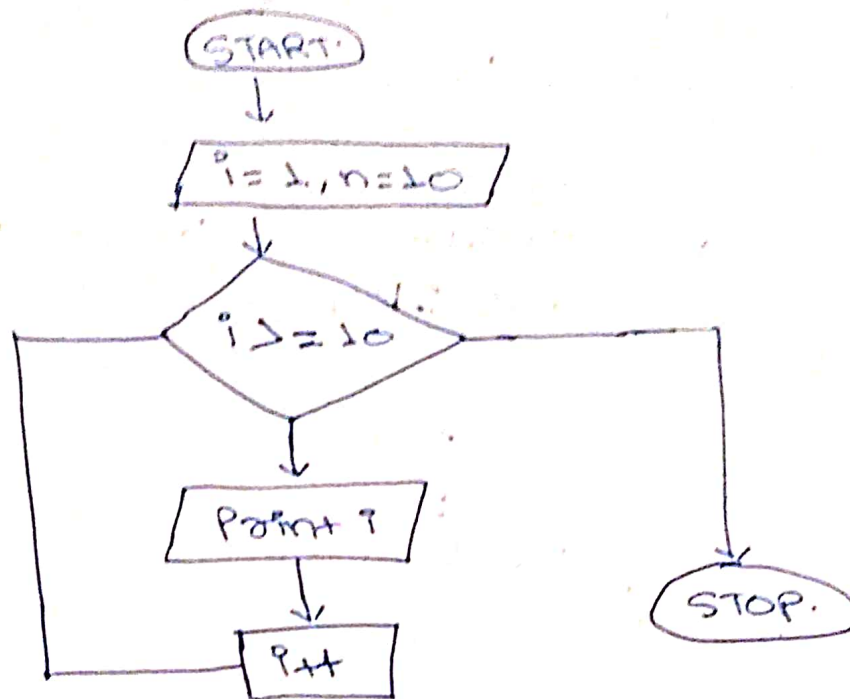
Q8. Flow chart to Print digits of a given number.

START

Enter n!

If
n<0

STOP

n>0

$r = n\%10$

Print r

n=n/10

STOP
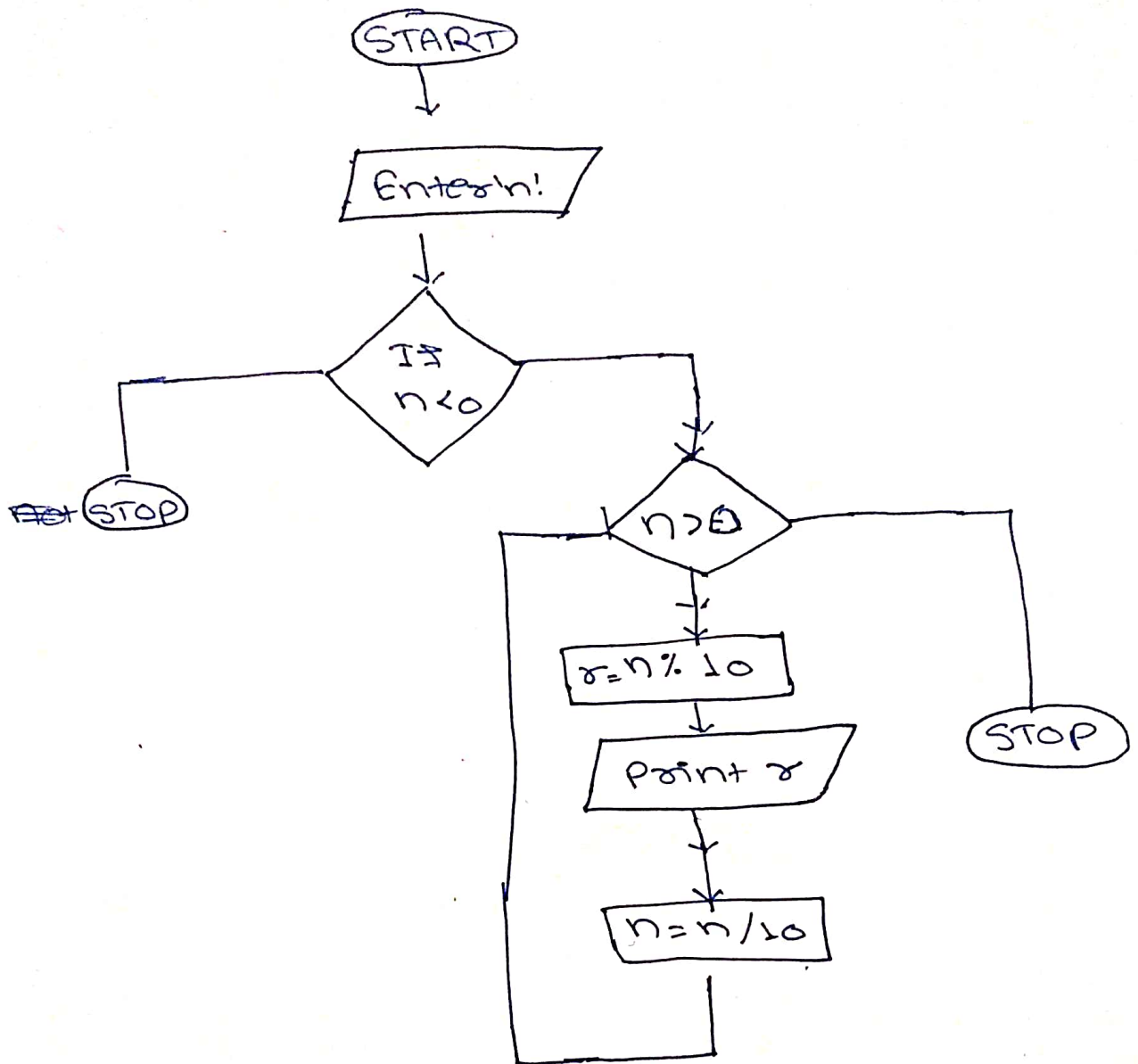
Q.9 Program to print all factors of a given numbers

START

Enter the no.

wheather
i = num
reached

yes.

if num%i==0

false

Print i

Compute i = i+1

STOP
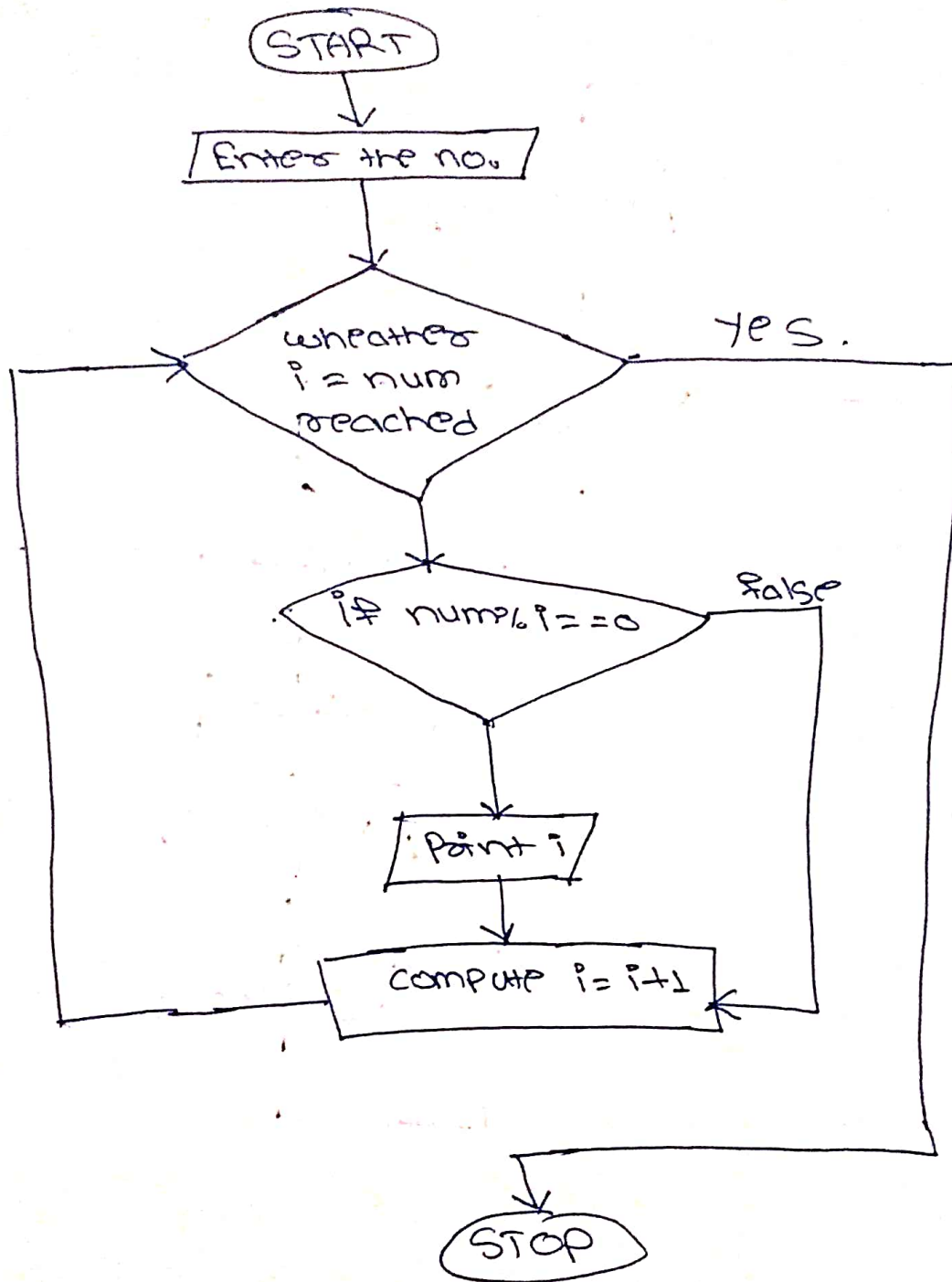
Q10 Flow chart to Print addition of digits of a given number.

START

Input n.

If n<0

Print 0

STOP

S=0, m=n

n=0.

$r = n \% 10$

$S = S + r$

$n = n/10$

Print S

STOP.
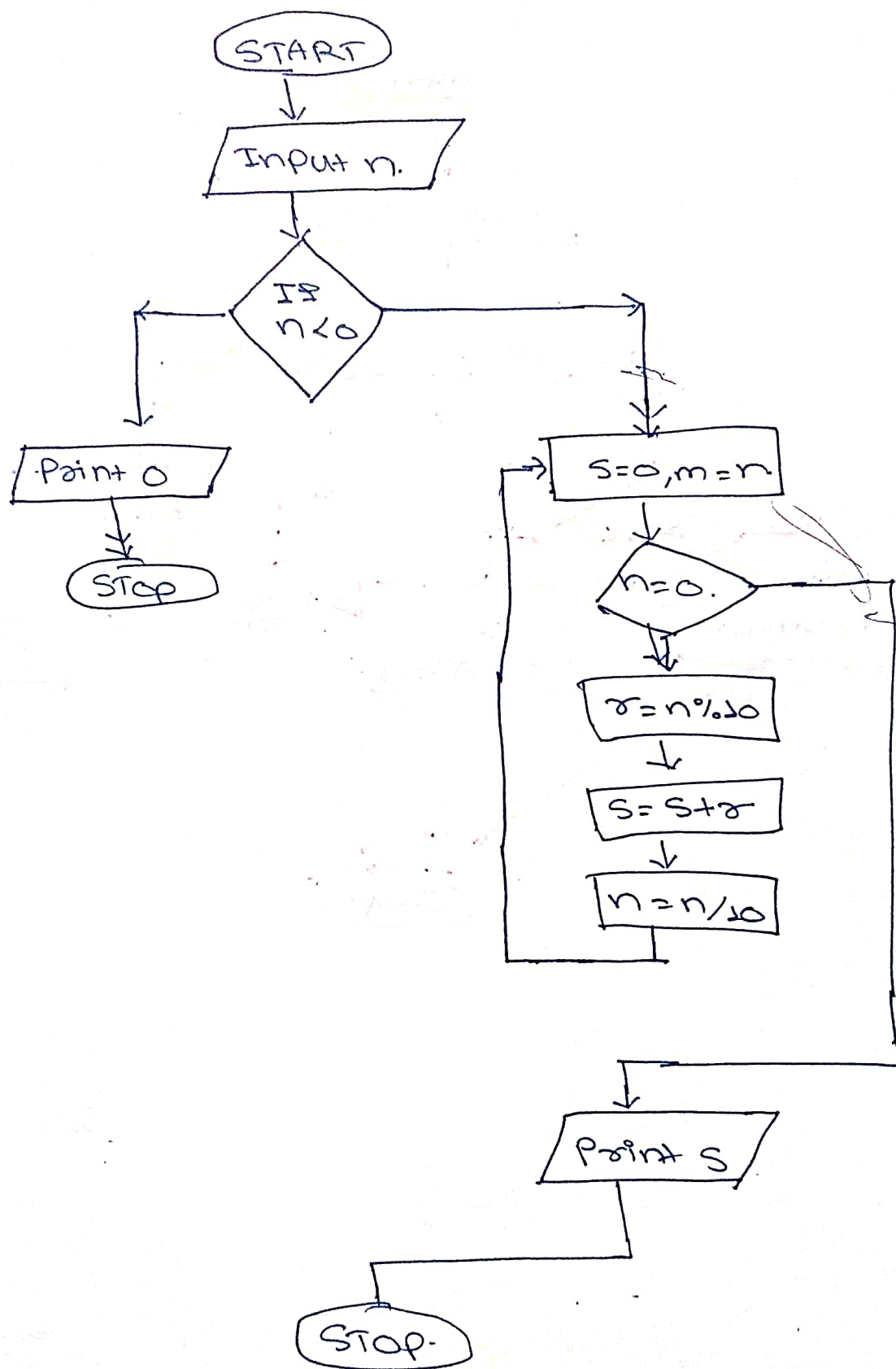
Q11 flow chart to find smallest of 3 numbers
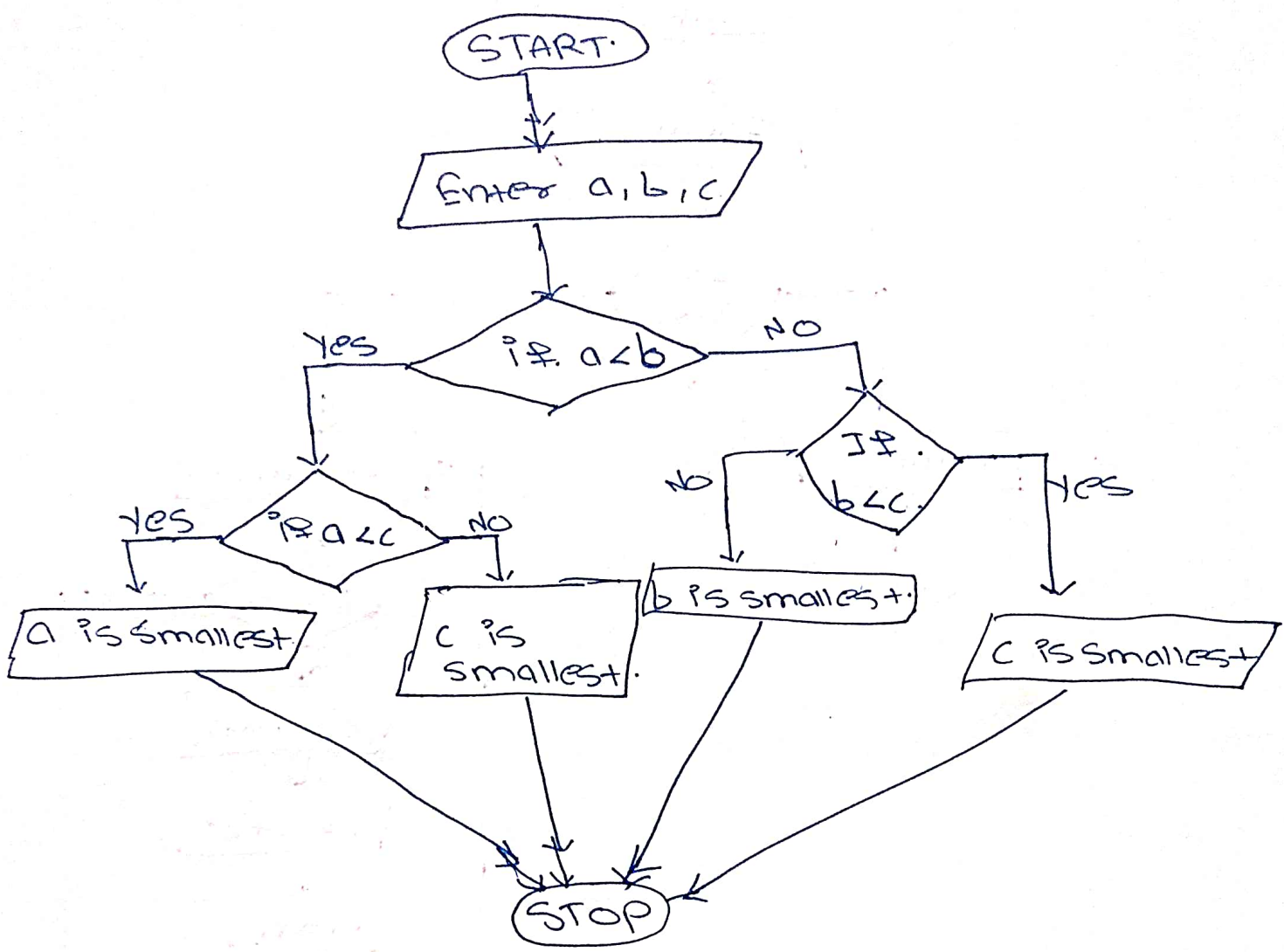
Q13. flow chart to Reverse a given number

START

S = 0.

Enter a num

n

$n > 0$ False

True

$r = n \% 10$

$S = S \times 10 + r$

$n = n / 10.$

S

STOP
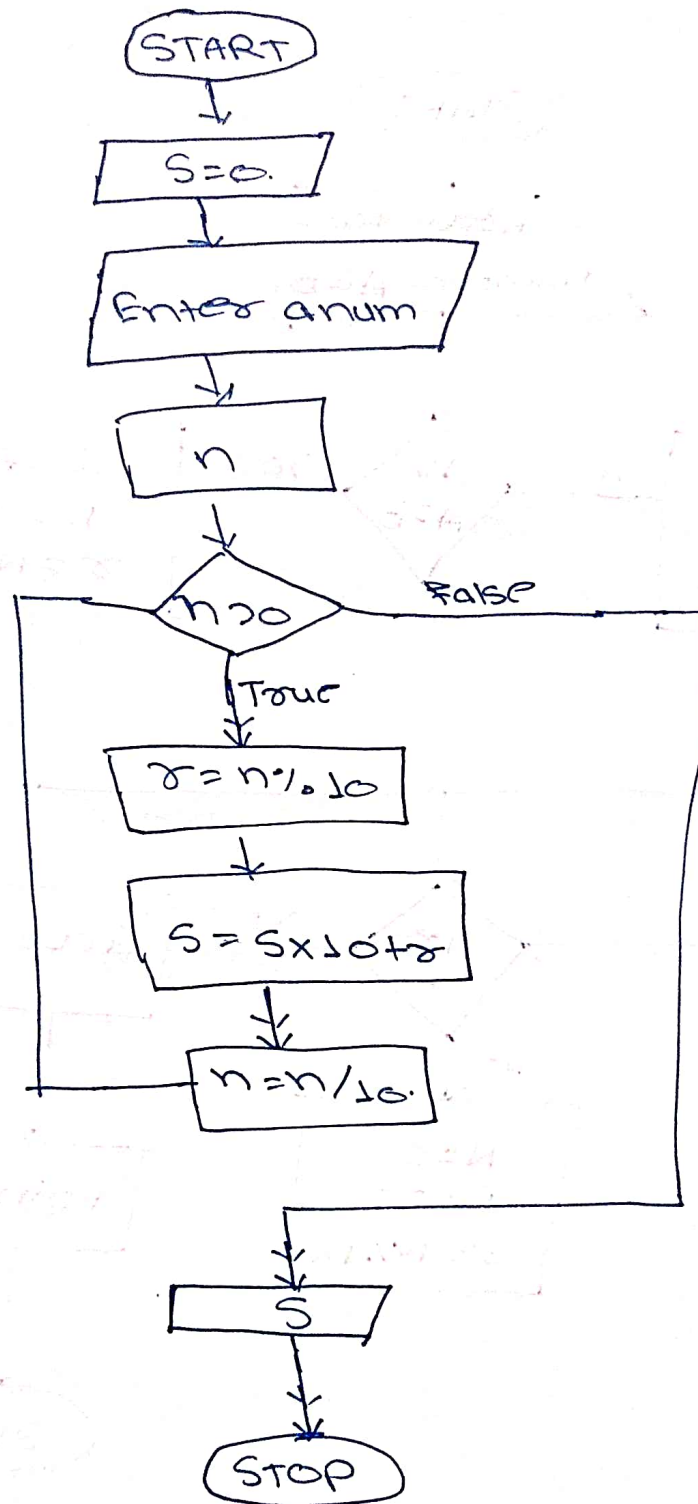
Q14 Flow chart to find GCD of two numbers

START

Read two numbers A&B

if A>B

NO → N=B, D=A, r=N%C.

yes → N=A, D=B, r=N%C.

if r=c

yes → GCD=C

NO → N=C, D=r, r=N%D.

Point GCD

STOP
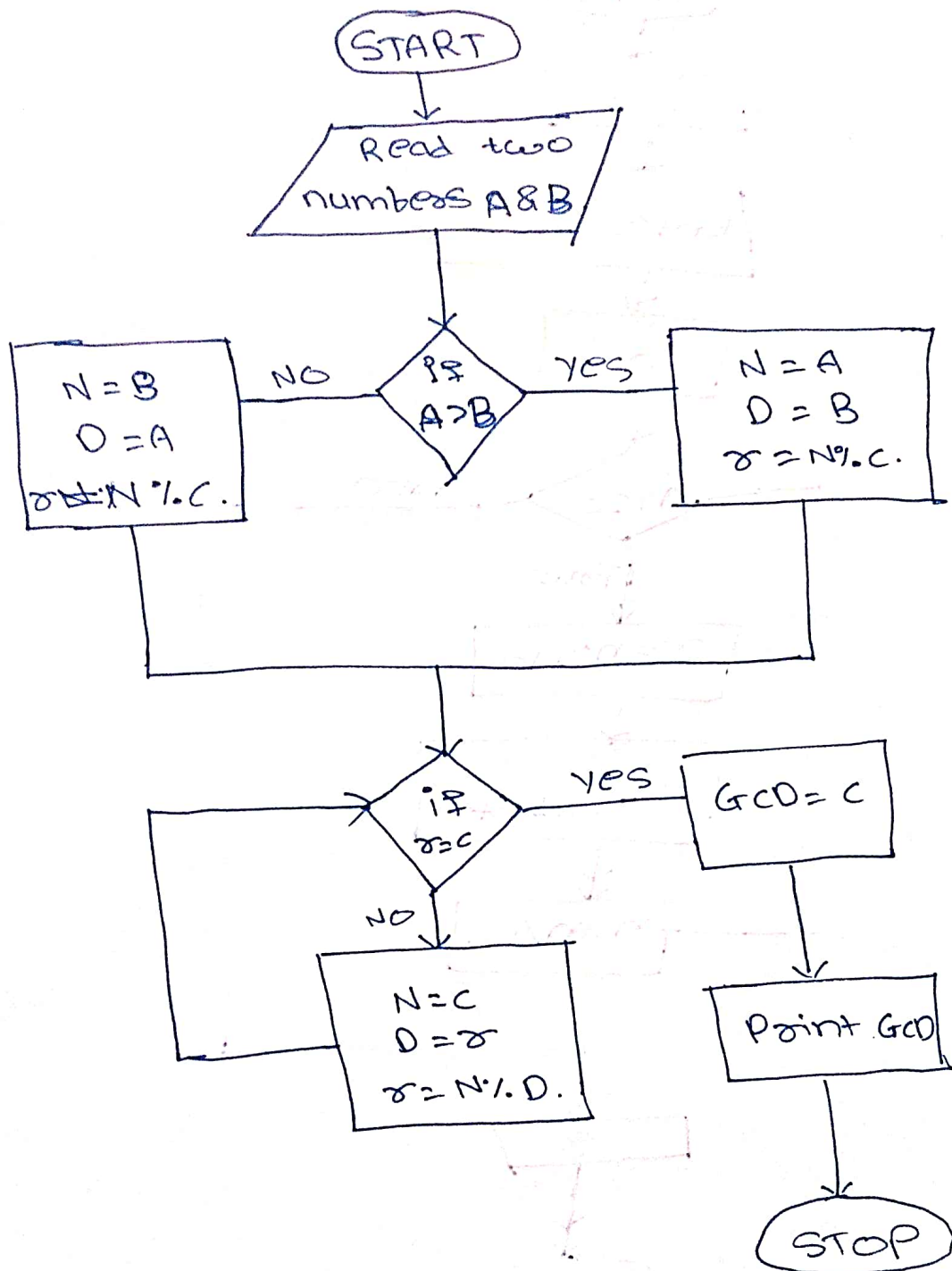
Q13 Flow chart to find LCM of two numbers

```
                          ┌─────────┐
                          │  START  │
                          └────┬────┘
                               ↓
                    ╱─────────────────╲
                   ╱   Read two         ╲
                  ╱    numbers           ╲
                  ╲    A & B             ╱
                   ╲─────────────────────╱
                               │
                               ↓
    ┌──────────┐          ◇ IF ◇        yes      ┌──────────┐
    │ N = B    │─────────◇  A>B  ◇──────────────→│ N = A    │
    │ D = A    │          ◇    ◇                  │ D = B    │
    │ r = N%C  │                                  │ r = N%C  │
    └────┬─────┘                                  └────┬─────┘
         │                                             │
         └──────────────────┬──────────────────────────┘
                            ↓
          NO           ◇ if ◇       yes        ┌──────────────┐
      ┌─────────────◇  r = C ◇─────────────────→│ GCD = C      │
      │              ◇      ◇                    │ LCM = A*B    │
      │                  │                       │       ───    │
      │                  ↓                       │       GCD    │
      │            ┌──────────┐                  └──────┬───────┘
      │            │ N = C    │                         ↓
      └───────────→│ D = r    │                  ┌──────────────┐
                   │ r = N%D  │                  │  Print LCM   │
                   └──────────┘                  └──────┬───────┘
                                                        ↓
                                                  ┌──────────┐
                                                  │   STOP   │
                                                  └──────────┘
```
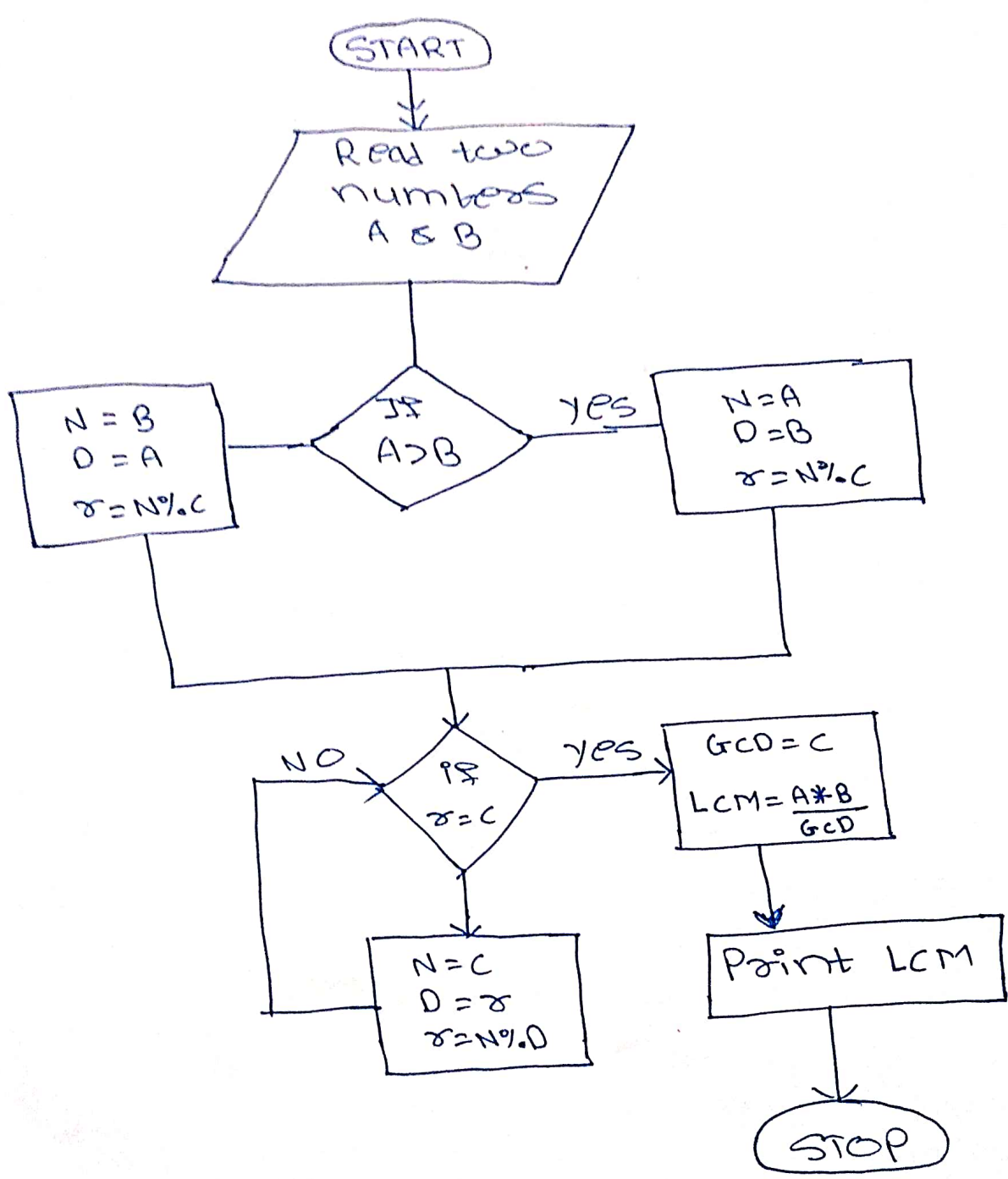
Q17 flow chart to find number is Palindrome
or NOT

START

Read number num

Assign temp=num
rev=0

num=0

rem=num % 10
rev=rev*10+rem
num=num/10

if
num==rev

num is Palindrome

num is not Palindrome

STOP
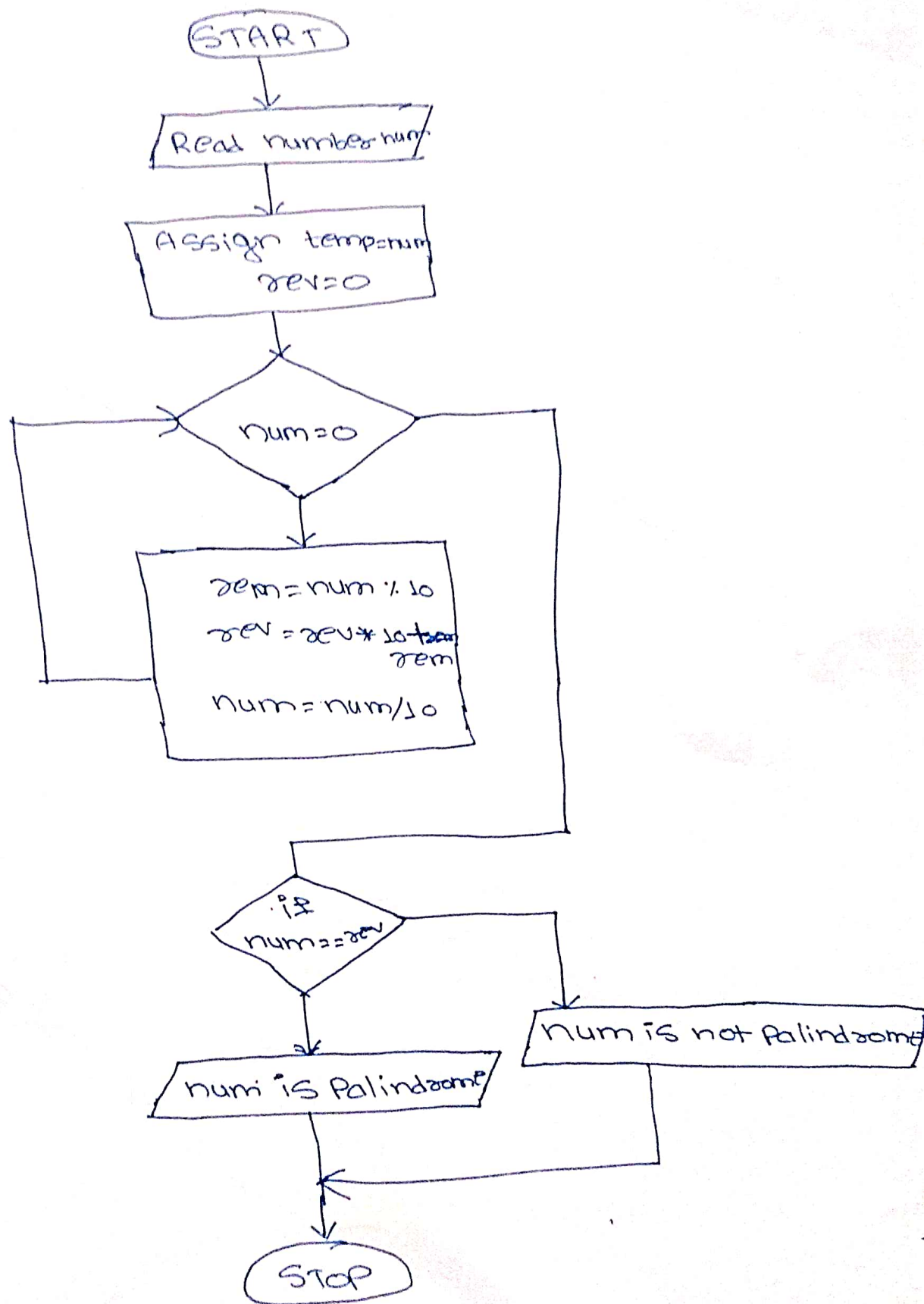
Q19 Flow chart to Print Even number series

```
                    ( START )
                        |
                        v
        +---------------------------------+
        |  Read  num                      |
        +---------------------------------+
                        |
                        v
                        +<--------------------------+
                        |                           |
                   /           \                    |
                  /  wheather   \     NO       +----------+
                 <   num%2==0     >----------->|  num++   |
                  \             /              +----------+
                   \           /
                        |
                       yes
                        |
                        v
              +-------------------+
              |  Print num        |
              +-------------------+
                        |
                        v
                    ( STOP )
```
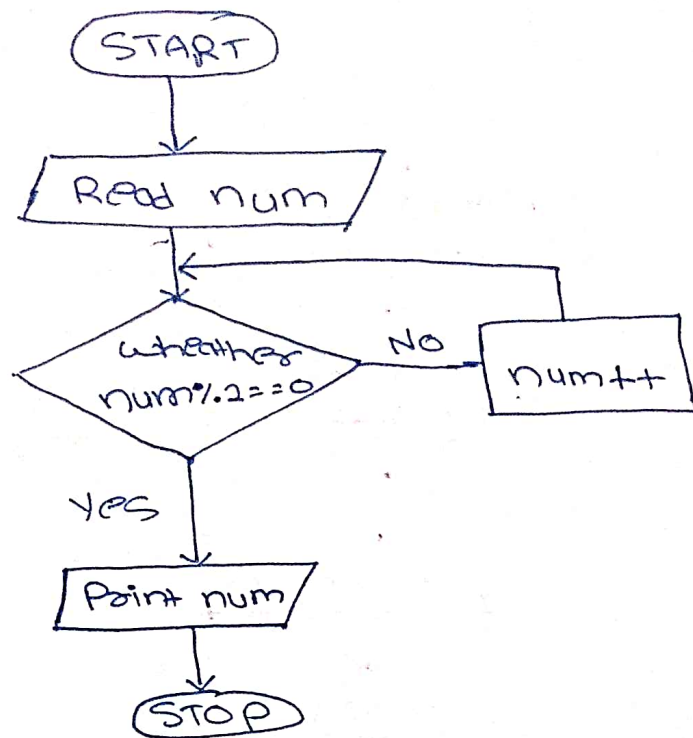
Q20 flow chart to Print Odd number series

```
            ┌─────────┐
            │  START  │
            └────┬────┘
                 │
                 ▼
        ╱────────────────╲
        │   Read  num     │
        ╲────────────────╱
                 │
                 │◄──────────────────────┐
                 ▼                        │
              ╱─────╲                     │
            ╱ wheather ╲      No      ┌──────────┐
           ⟨ num%2!=0   ⟩──────────► │  num++   │
            ╲         ╱               └──────────┘
              ╲─────╱
                 │ yes
                 ▼
        ┌─────────────────┐
        │   Print num     │
        └────────┬────────┘
                 │
                 ▼
            ┌─────────┐
            │  STOP   │
            └─────────┘
```