Practice Set
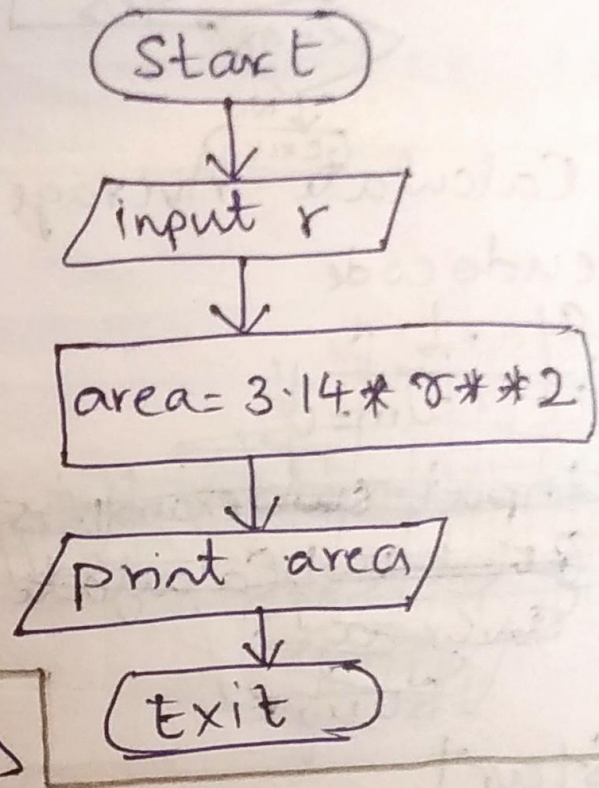
1) Calculate the area of a circle

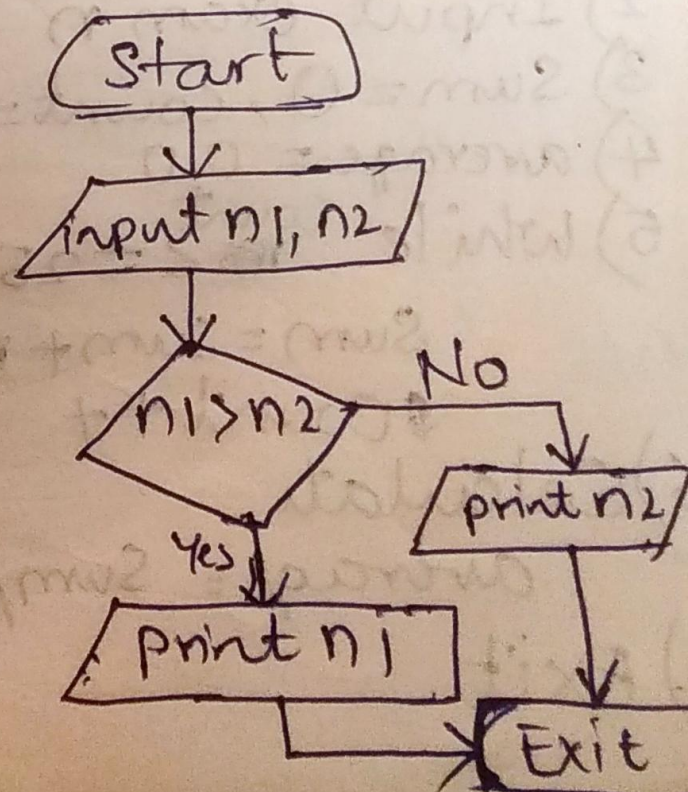pseudo code

1) Start
2) Input radius r
3) Calculate area
   $$3.14 * r ** 2$$
4) print area
5) Exit

```
Start
  ↓
input r
  ↓
area = 3.14 * r ** 2
  ↓
print area
  ↓
Exit
```

2) Greatest from 2 numbers

pseudo code

1) Start
2) Input no1, no2
3) if no1 > no2 do
      print no1
   else
      print no2
4) Exit

```
Start
  ↓
input n1, n2
  ↓
n1 > n2 ──No──→ print n2
  │ Yes             │
  ↓                 │
print n1            │
  └────→ Exit ←─────┘
```

3) Print the Even numbers b/w 9 and 100

pseudo code
1) Start
2) Let even = 9
3) while even <= 100 do
        if even % 2 = 0
           print even
         even++
4) Exit

(or)

```
Start
  |
  v
even = 9
  |
  v
while even <= 100
  |
  No ----> if even % 2 = 0
  |              |
  v              Yes
Print ntg    print even
  |              |
  v              |
  Exit <---------
```

```
Start
  |
  v
i = 10
  |
  v
While i
  |
  v
i = i + 2
  |
  v
i <= 98  --Yes-->
  |
  No
  v
EXIT
```
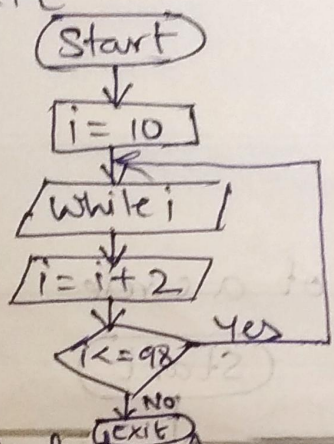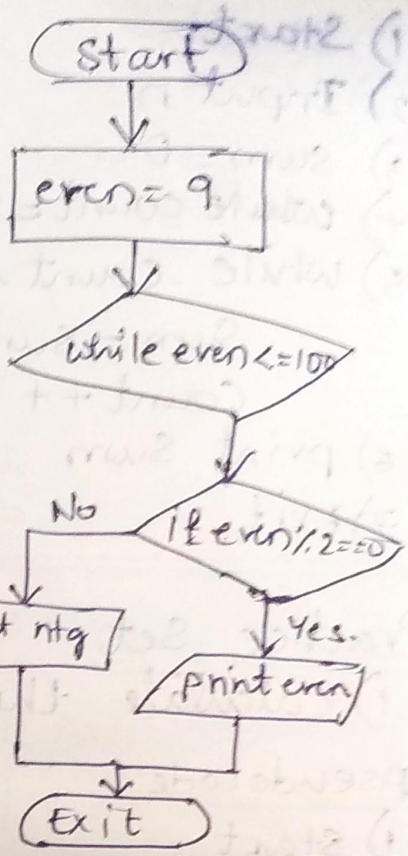
4) Calculate Average from 25 exam scores

pseudo code
~~1) Start~~
~~2) Let sum = 0~~
~~3) Input exam 25~~
~~4) Calculate~~
~~average~~
~~Sum ÷~~

1) Start
2) Input exam n
3) Sum = 0, count = 1
4) average = 0.0
5) While count <= 25 do
        Sum = Sum + n
        Count ++
6) Calculate
      average = Sum/2
7) Exit

```
Start
  |
  v
Let Sum = 0; Count = 1
  |
  v
while Count <= 25
  |
  Yes
  v
Input n
  |
  v
Sum = Sum + n
Count = Count + 1
  |
  v
average = Sum/25
  |
  v
exit
```

```
                    ( Start )
                        |
                        v
        +-------------------------+
        |  Let sum = 0,           |
        |  count = 1              |
        +-------------------------+
                        |                    +-------------------+
                        |                    |   Input n         |
                        v  <-----------       +-------------------+
                                                       |
                                              +-------------------+
                   / while     \              | sum = sum + n     |
                  <  count <= 25 >------------>| count = count + 1 |
                   \           /              +-------------------+
                        |
                        v
        +-------------------------+
        |  average = Sum / 25     |
        +-------------------------+
                        |
                        v
                    ( Exit )
```
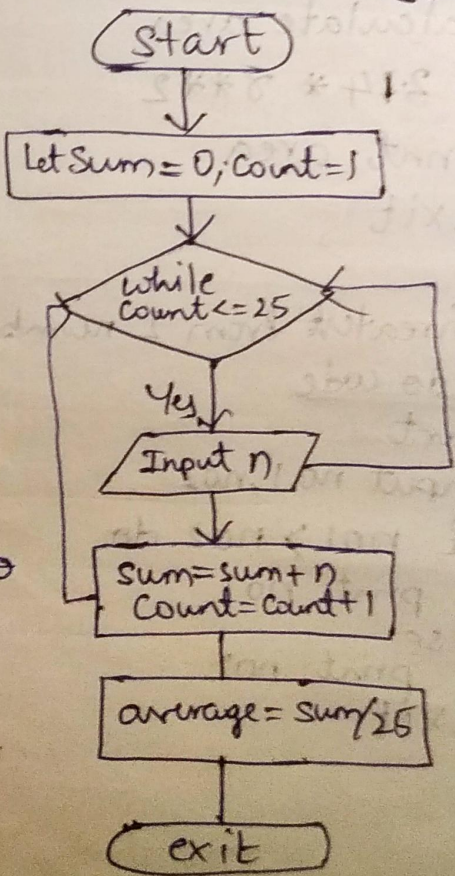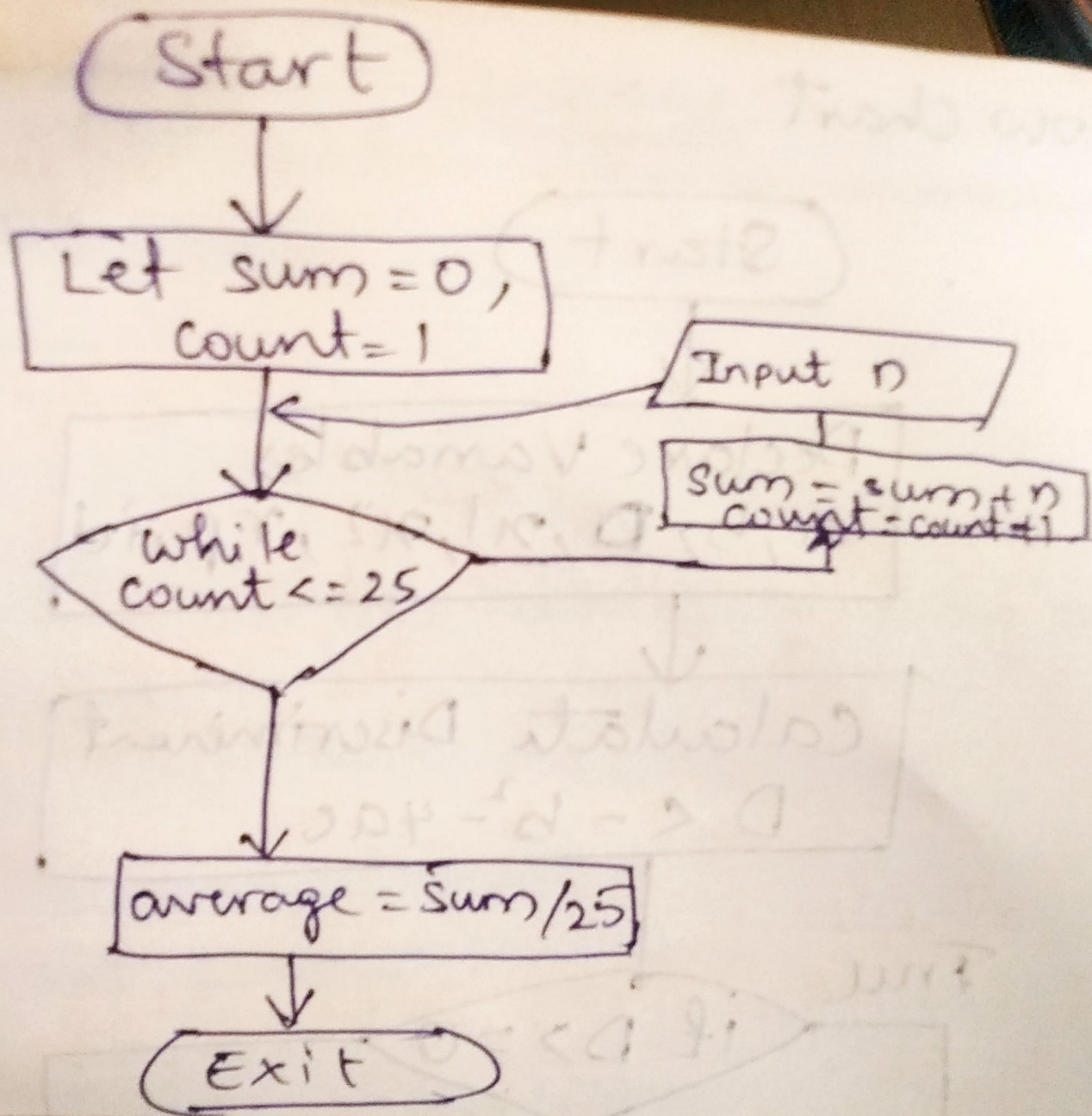
5) Find all roots of the quadratic equation

Flow chart

```
              Start
                │
                ▼
      ┌─────────────────────┐
      │  Declare Variables   │
      │  a, b, D, x1, x2, rp, id │
      └─────────────────────┘
                │
                ▼
      ┌─────────────────────┐
      │ Calculate Discriminent│
      │    D <- b² - 4ac     │
      └─────────────────────┘
                │
                ▼
   True      ◇ if D >= 0 ◇
    │                    │
    ▼                    ▼
┌──────────────────┐   ┌──────────────┐
│ r1 = (-b+√D)/2a  │   │ ip = -b/2a   │
│ r2 = (-b∓√D)/2a  │   │ rp = √-D/2a  │
└──────────────────┘   └──────────────┘
    │                        │
    │                        ▼
    │                  ┌──────────────┐
    │                  │ x1 = ip+j*ip │
    │                  │ x2 = rp-j*ip │
    │                  └──────────────┘
    │                        │
    └───────────┬────────────┘
                ▼
      ┌─────────────────────┐
      │  Display r1 & r2     │
      └─────────────────────┘
                │
                ▼
              Exit
```

$D \leftarrow b^2 - 4ac$

if $D >= 0$

$r1 = (-b+\sqrt{D})/2a$
$r2 = (-b\mp\sqrt{D})/2a$

$ip = -b/2a$
$rp = \sqrt{-D}/2a$

$x1 = ip + j*ip$
$x2 = rp - j*ip$