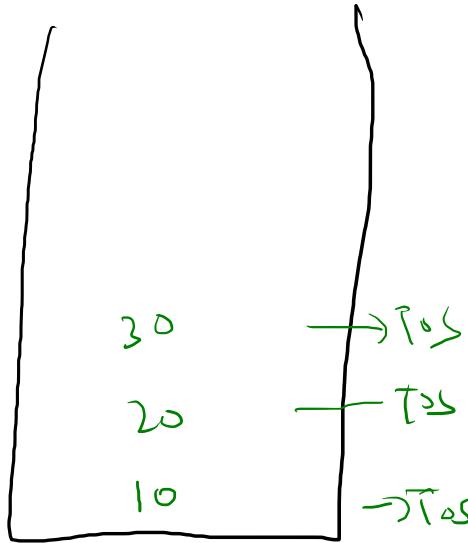


Queue to Stack Adapter

Report



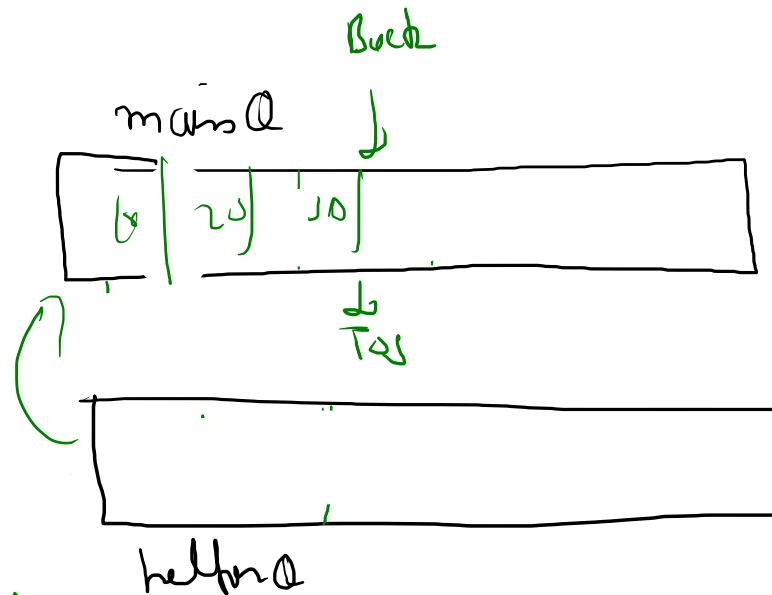
LIFO

push(10)

push(20)

push(30)

Peek() → 30



Push up ↴
→ O(1)

Pop
→ O(n)

Push ⚡
→ O(n)

Pop ⚡
→ O(1)

push
→ ends of odd(val)

pull → while (count of signs > 1) {
shift i to before
}

val = ends of forward
→ returning odd(val)
while (half == 0) {
shift i to ends of
}

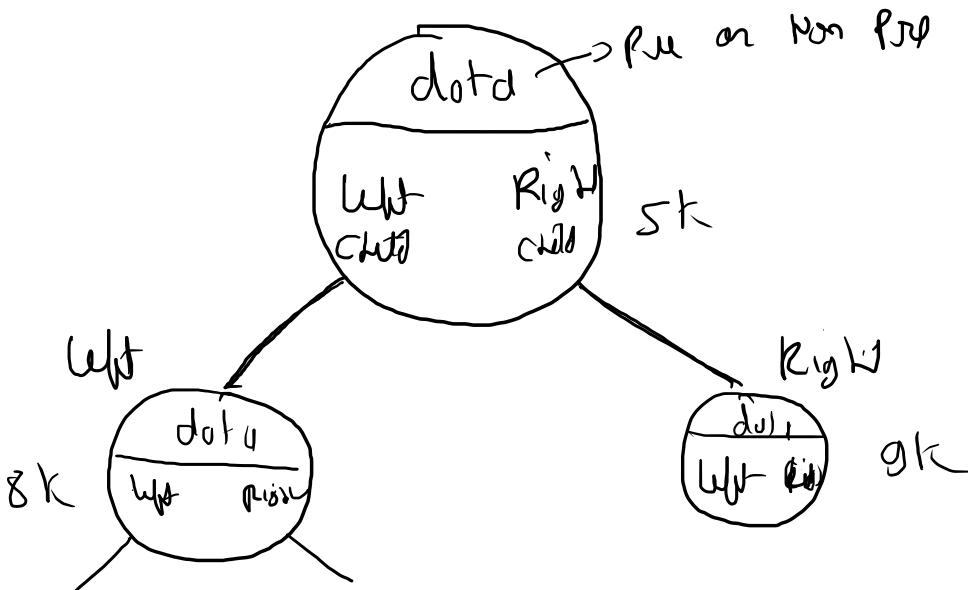
Trees

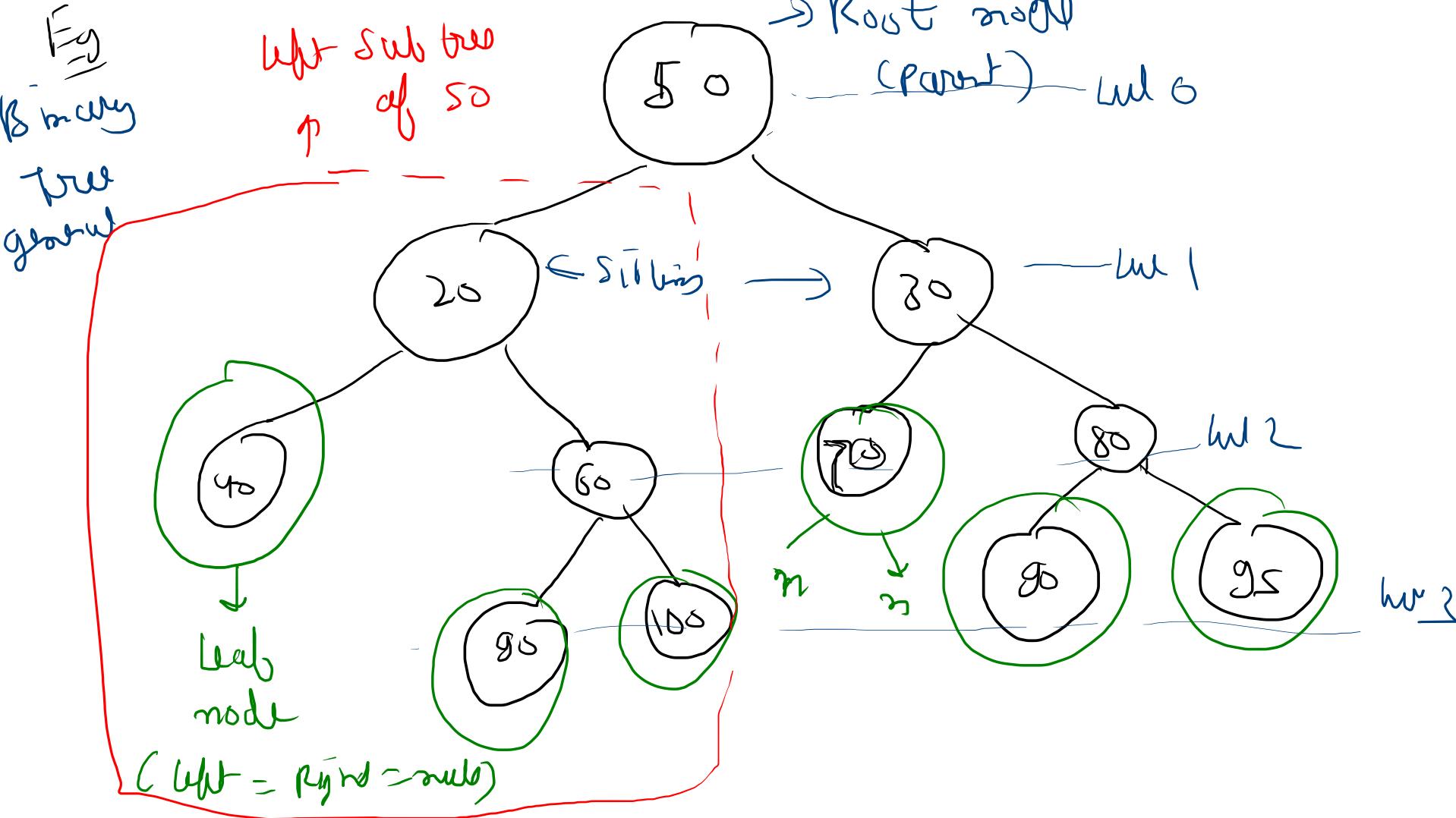
Store data in non linear & more cont

fashion

Binary

Tree Node

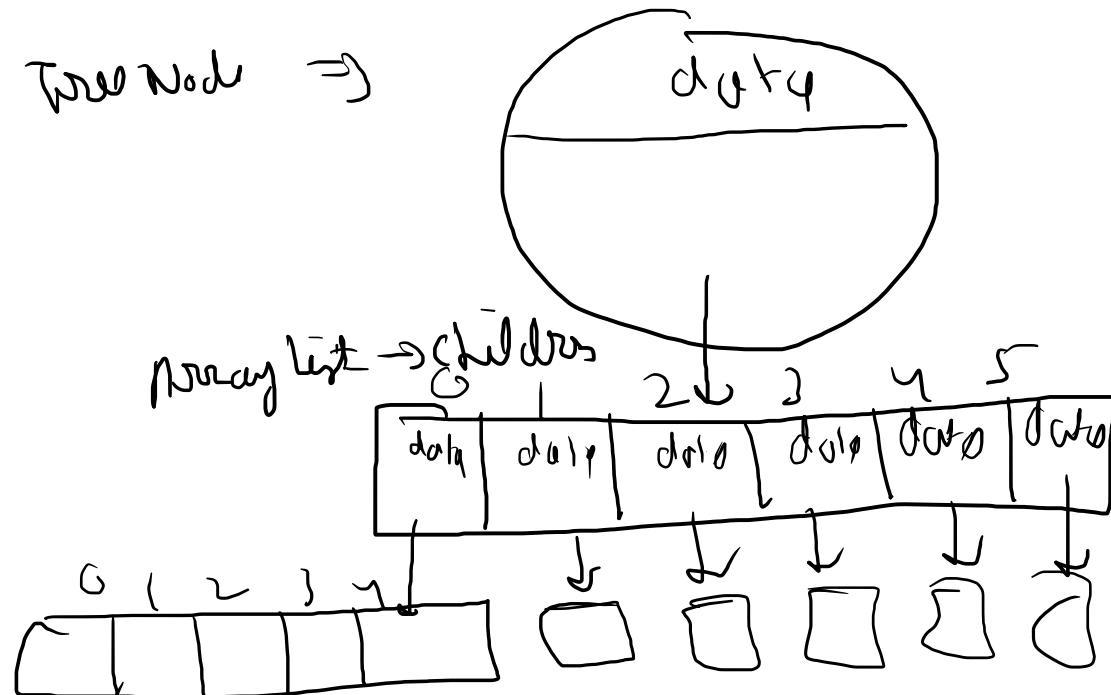




Generic Tree \rightarrow 0 or more child (0, 1, 2, 3, 4, ...)

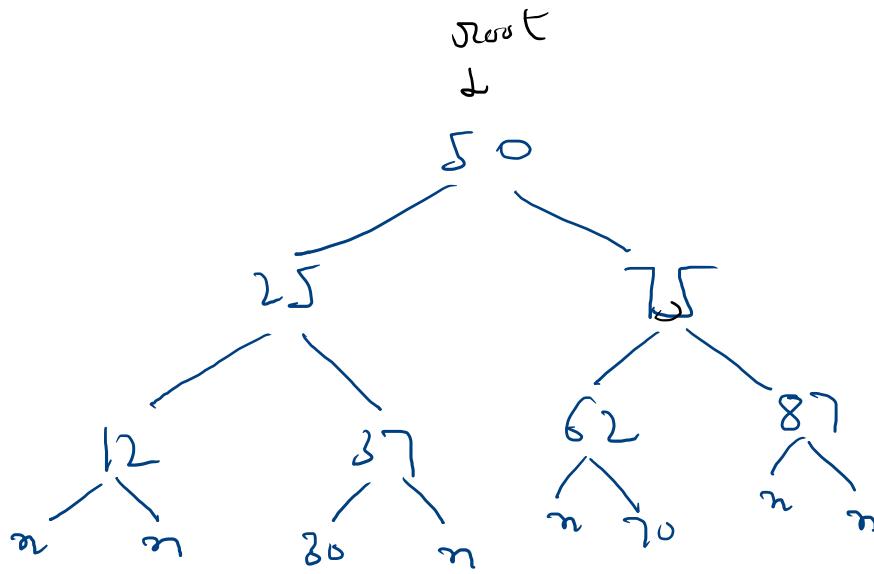
Binary Tree \rightarrow 2 children (Left & Right)

Generic Tree Node \Rightarrow



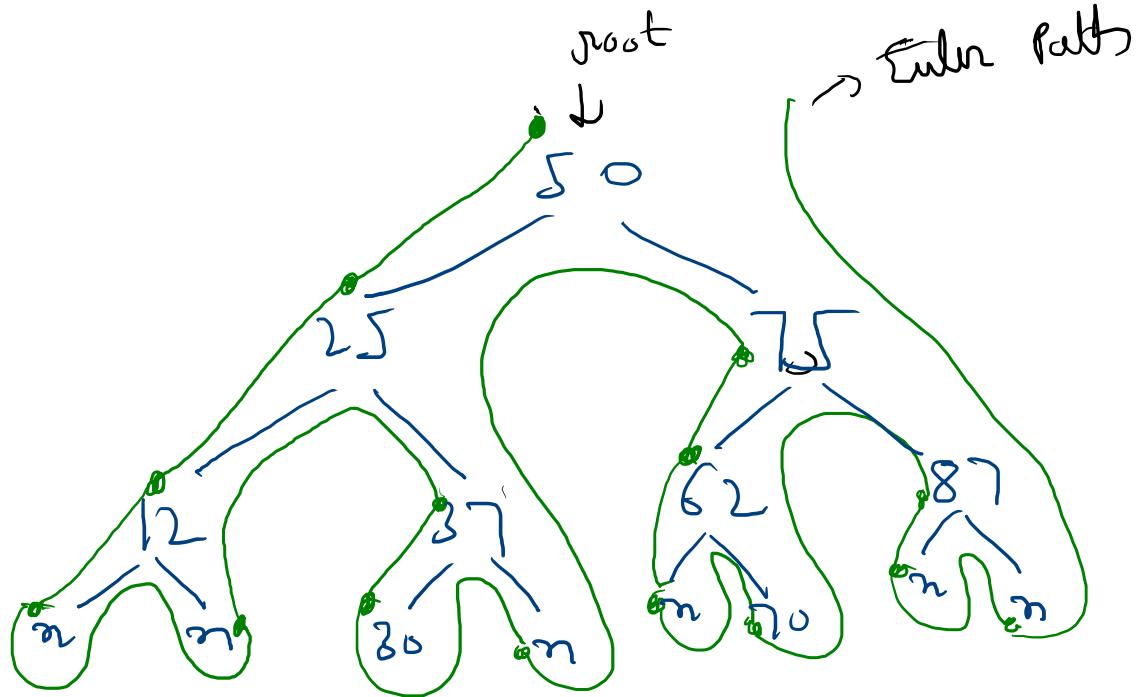
Traversal in tree

- ① Pre order
- ② In order
- ③ Post order

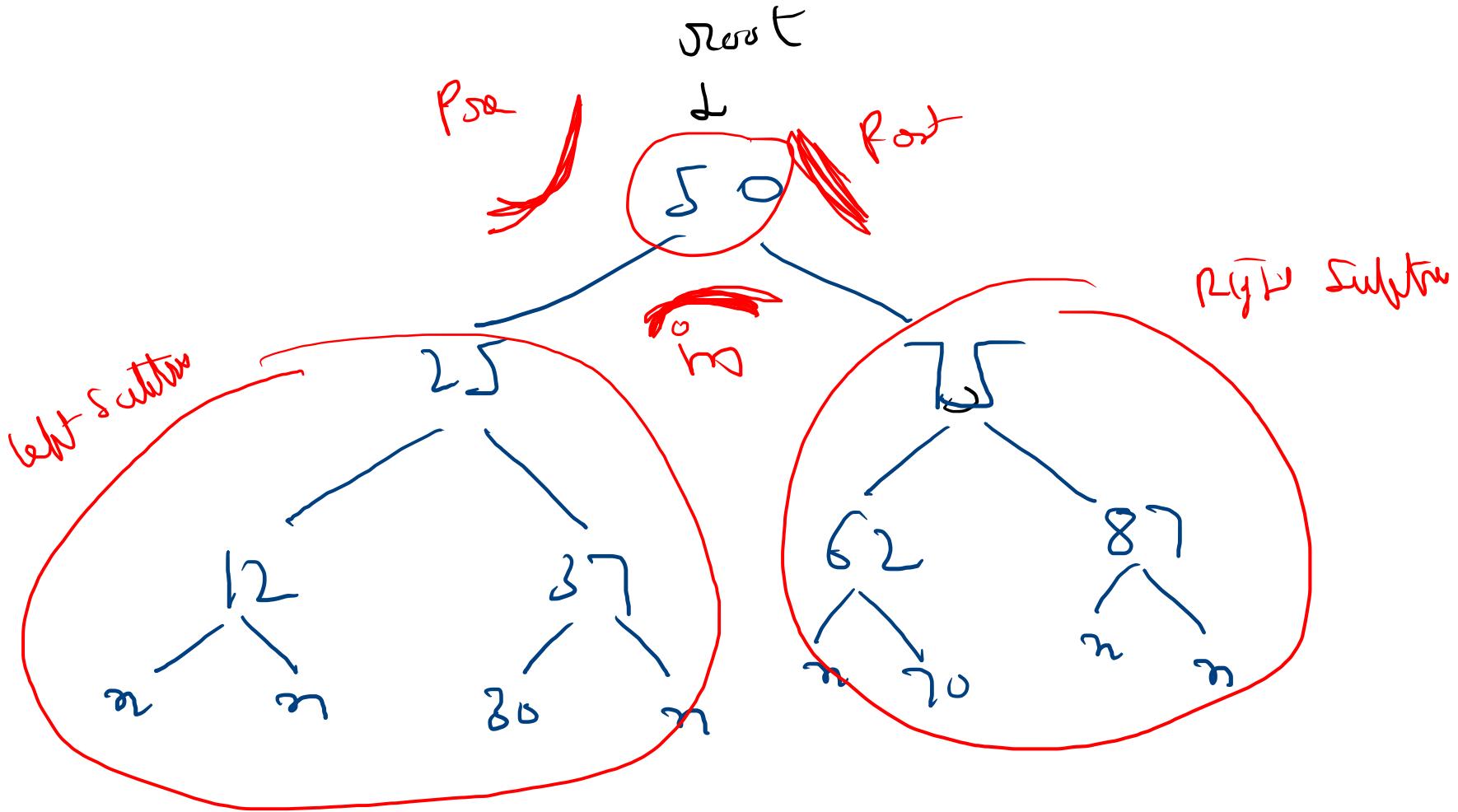


① Pre order traversal \Rightarrow Node Left Right

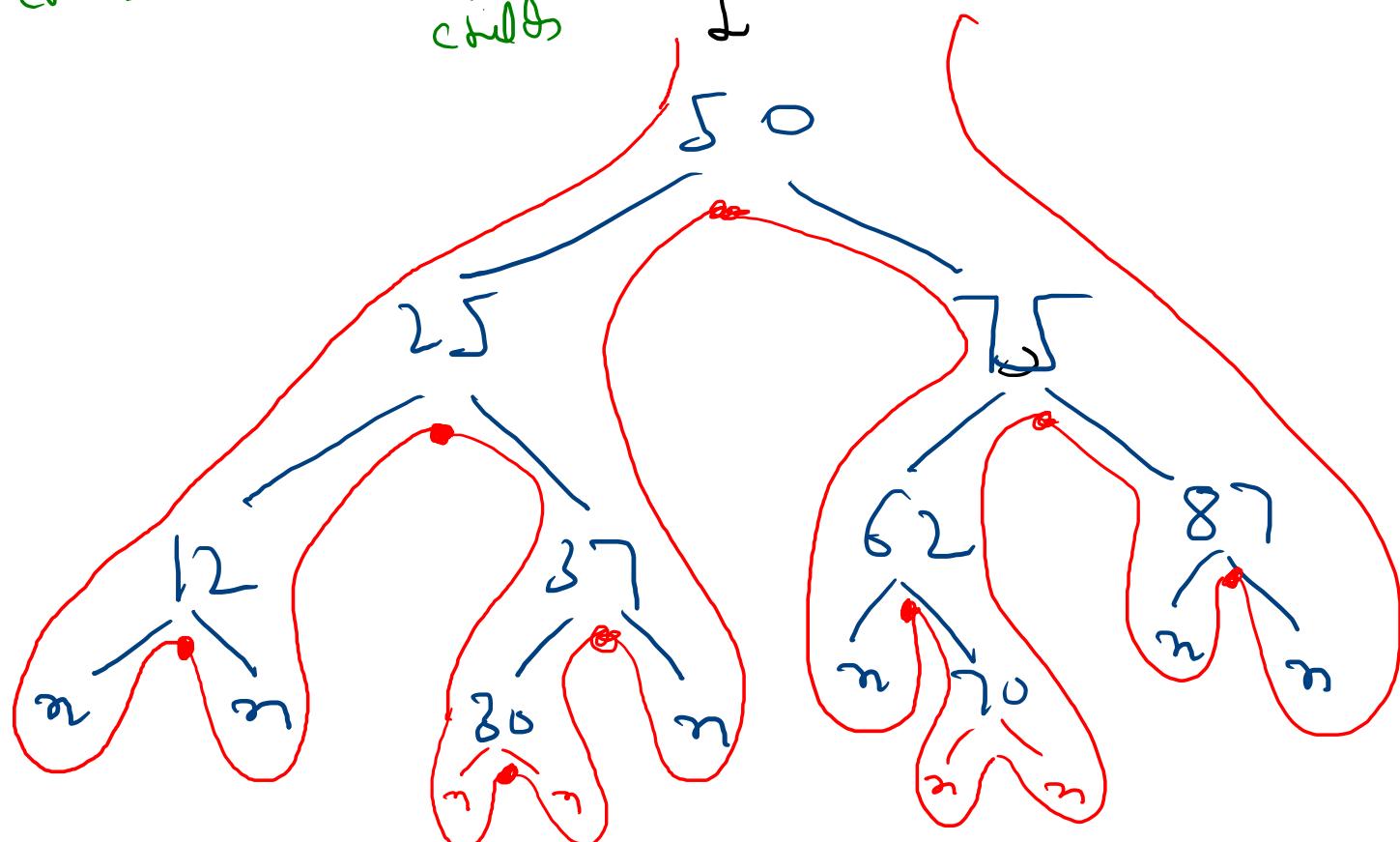
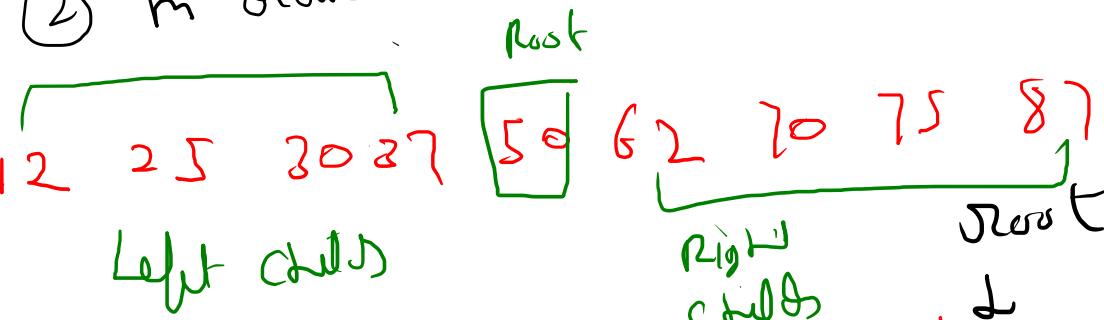
Node
left
right



50 25 12 20 30 37 75 62 70 87



② In order



Left Node Right

3

Post order

Left Right Nucle

12 30 37 25 70 62 87 75 50

۷۰۰

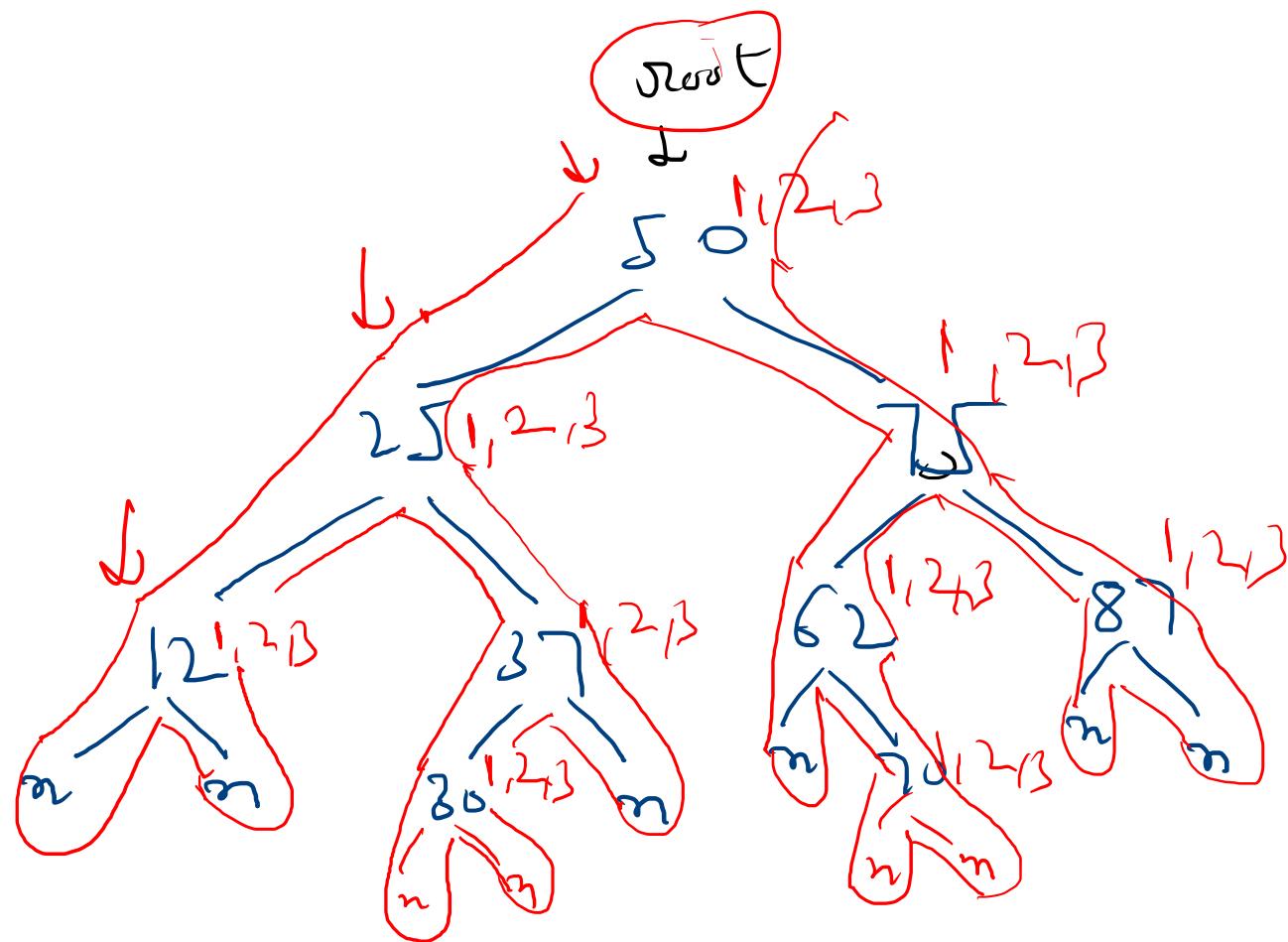
4

50

A hand-drawn diagram of a horse's skull in lateral view, outlined in red. Blue numbers label various points:

- 12: Lateral occipital protuberance
- 25: Lateral parietal protuberance
- 50: Lateral frontal protuberance
- 62: Lateral nasal process
- 87: Lateral zygomatic process
- 2: Lateral mandibular angle
- 3: Lateral mental process
- 20: Lateral maxillary process

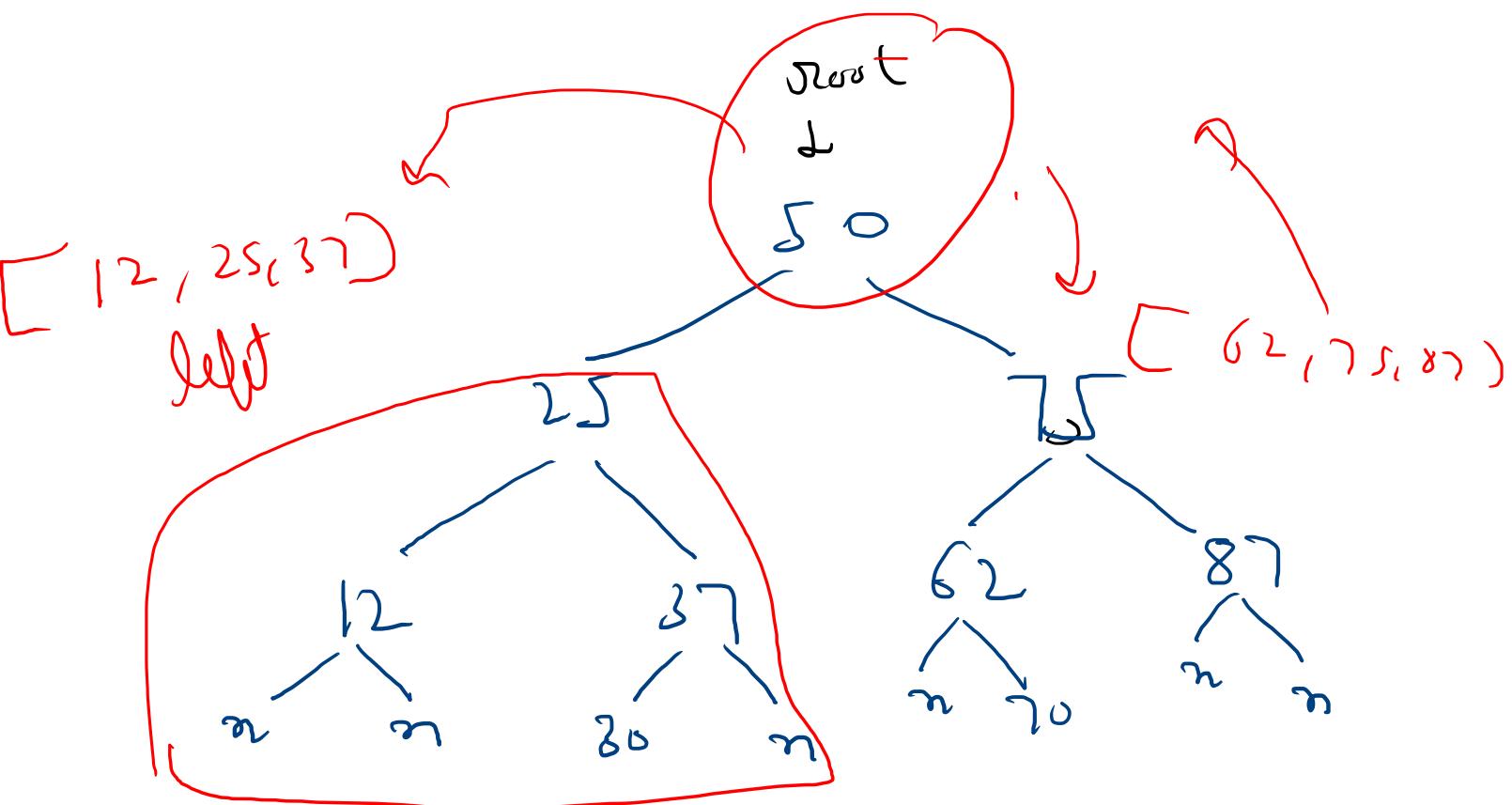
- ① in order (left)
 2 point (val)
 , in order (Right)



12, 25, 30, 37 | 50, 62, 70, 75, 87 → m

$[12, 25, 37, 50]$

$[12, 25, 37, 50, 62, 75, 87]$



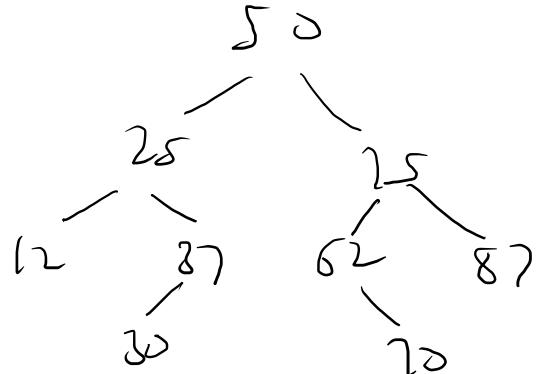
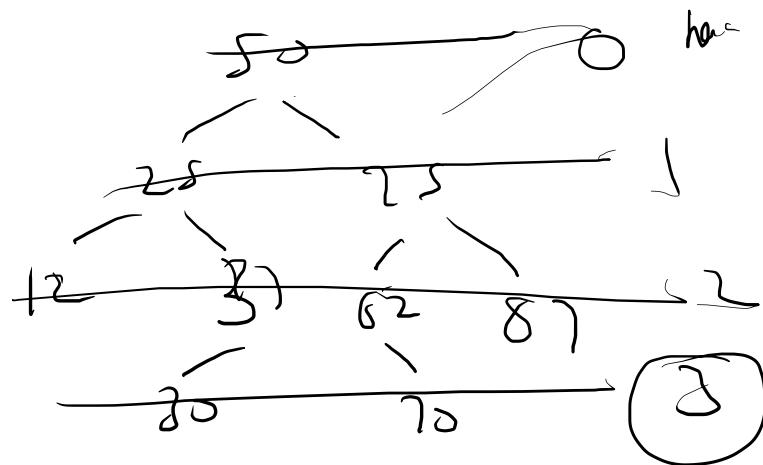
Size, height, max, sum

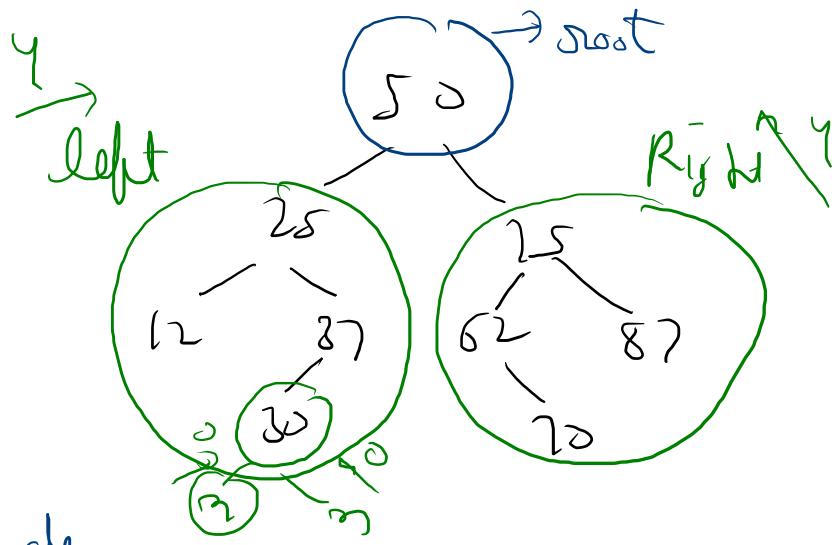
size = 9

sum = sum of all
nodes

max = 87

height = 3



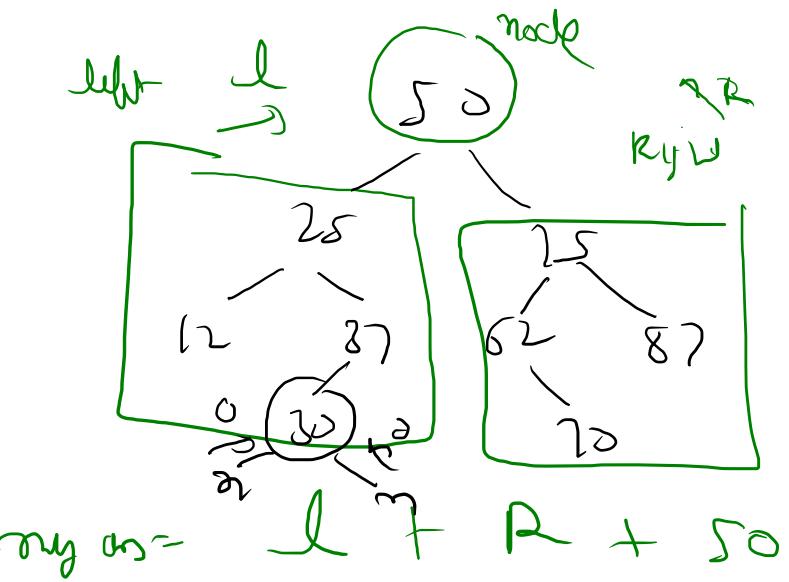


① $\text{Size} = g \text{ nodes}$

$$\text{my rm} = \text{left} + \text{right} + 1$$

$$4 + 4 + 1 = \underline{\underline{g}}$$

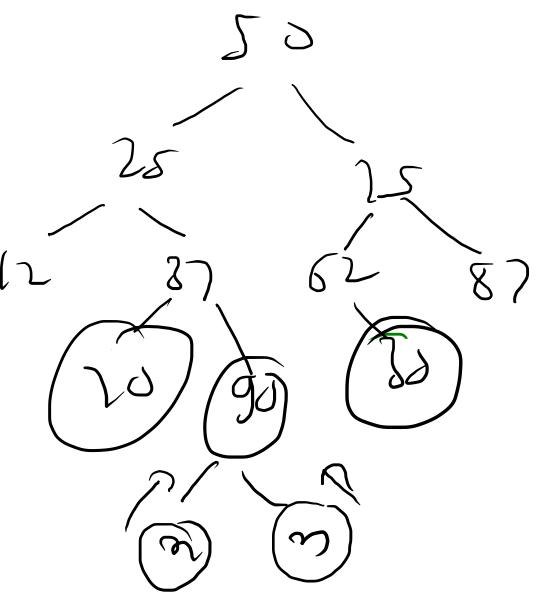
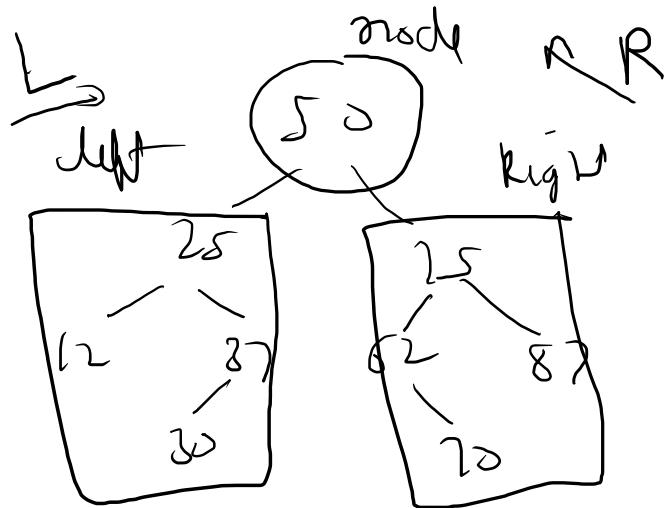
Sum



my ans - $l + R + 50$

$$0 + 0 + 20 = 20$$

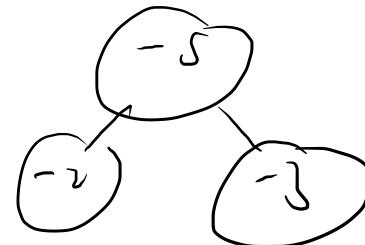
$$\max = \underline{87}$$



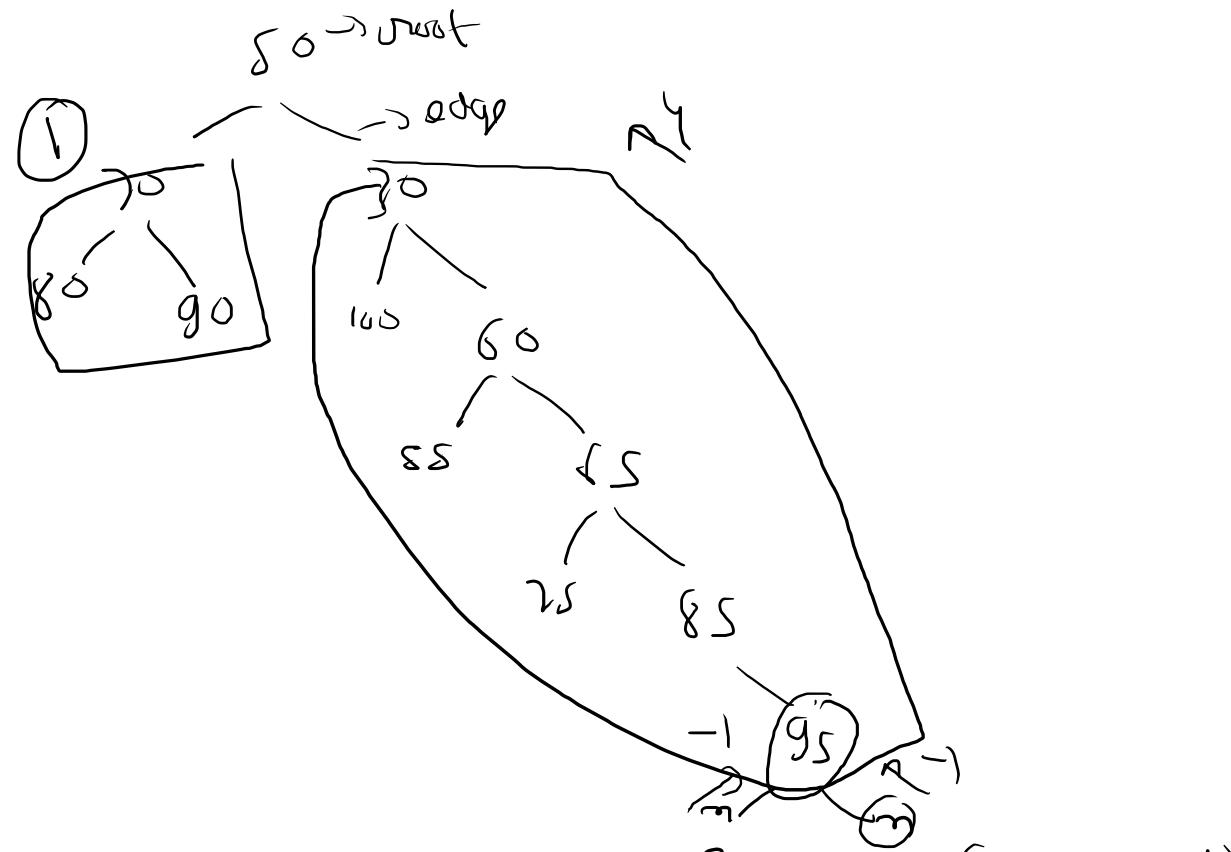
$$\max(L, R) \Rightarrow M$$

$$\max(m, \leq 0) \Rightarrow \text{Ans} \rightarrow \text{return}$$

$$\underline{\underline{E_5}}$$



height



height node $\Rightarrow 4$

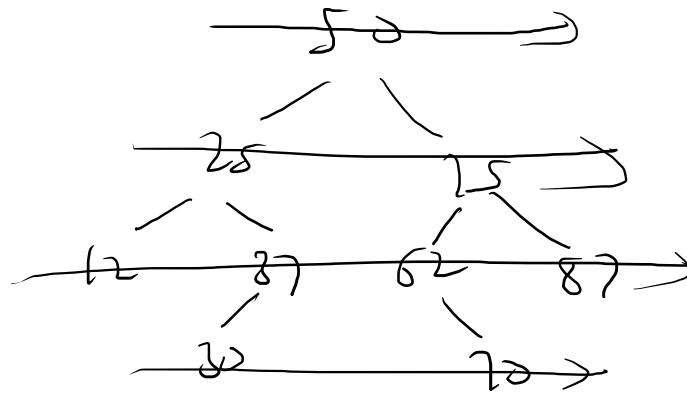
edge = 3

node, Edge $\rightarrow LH, RH \rightarrow \max + 1$

$$\max(1, 4) \Rightarrow 4 + 1 = 5$$

Base case ($\text{edge} == \text{null}$)
node $\rightarrow \text{return } 0$
edge $\rightarrow \text{return } -1$
 $\max(-1, -1) \Rightarrow -1 + 1 = 0$
 $\max(0, 0) + 1 \Rightarrow 1$

Level order



50

25

75

12

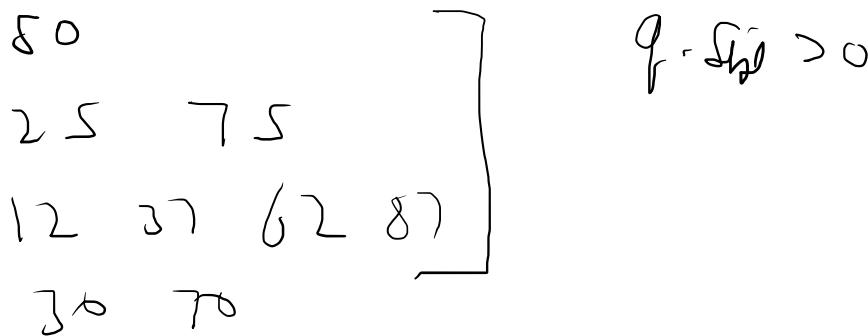
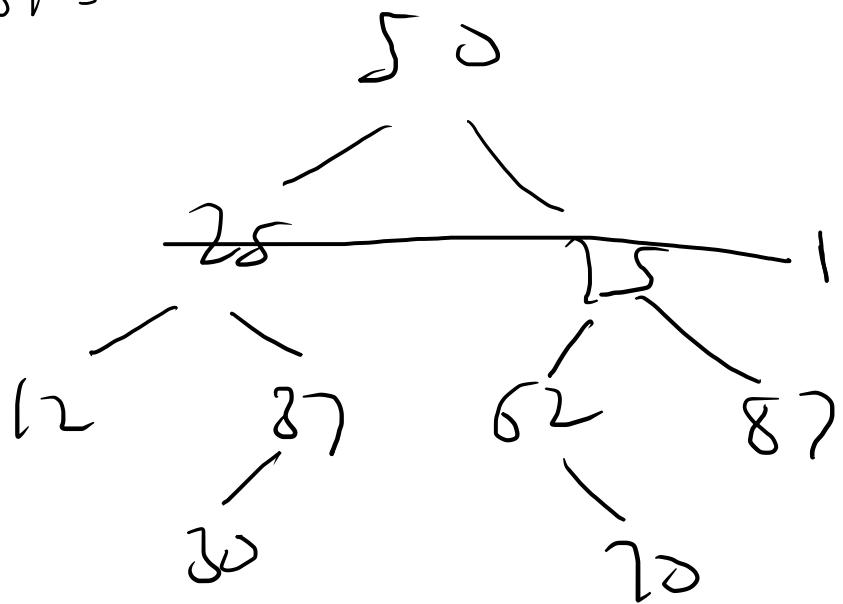
87

62

87

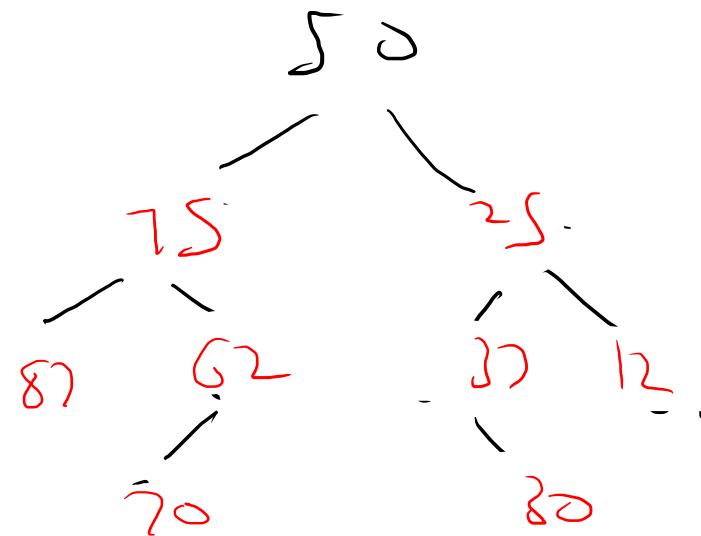
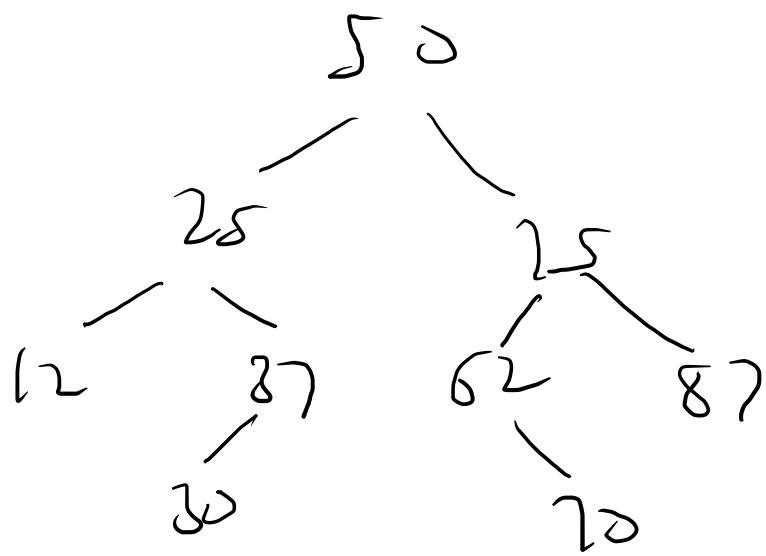
30 70

BFS → Breadth First Search

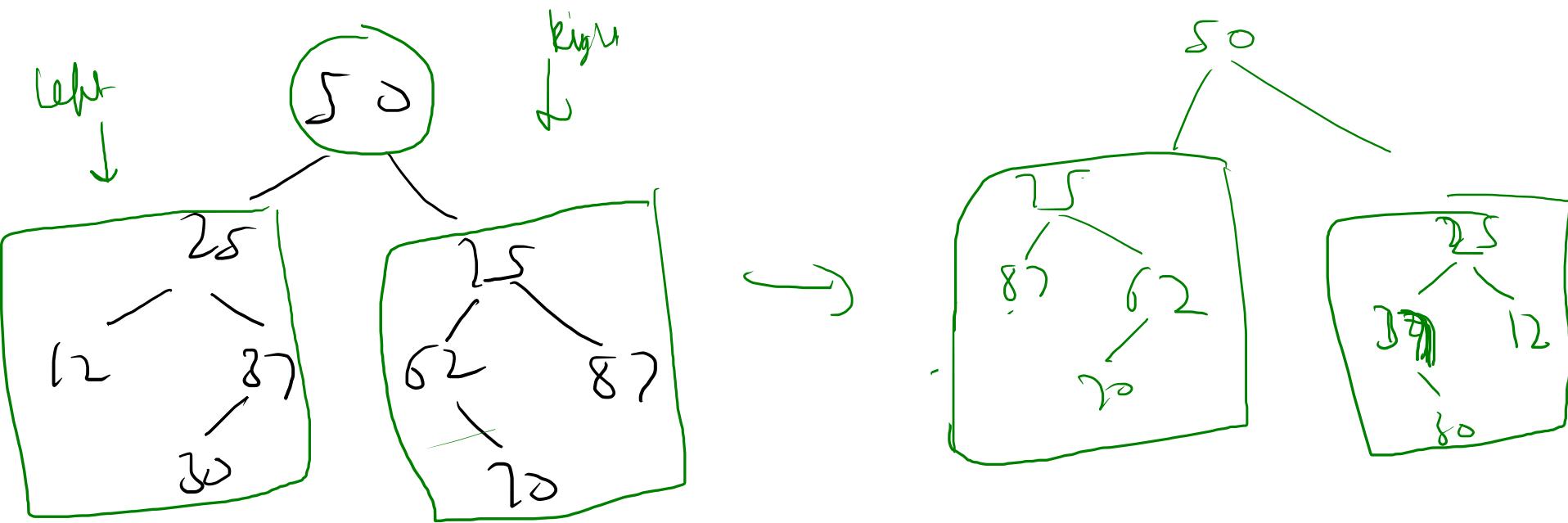


Queue →
↓
Tree Node

Invert



Post level order traversal tree \Rightarrow add \rightarrow right first
None left

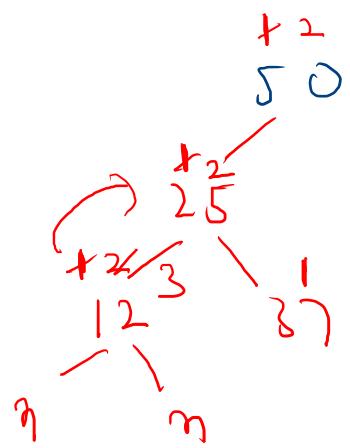


Construct

Pre order

50 25 12 n n 37 n n 75 67 n n 88 nn

① Use Stack



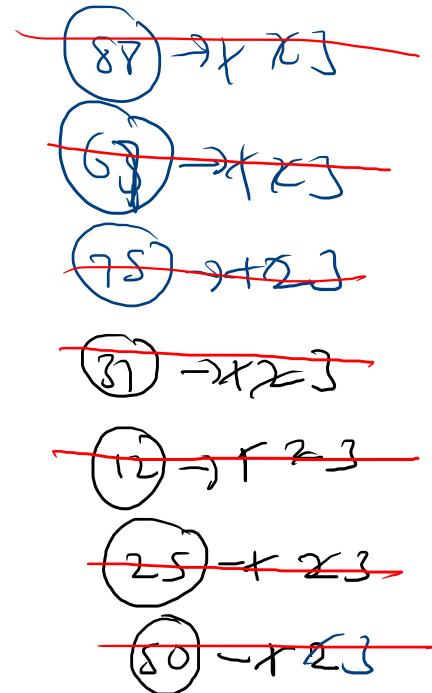
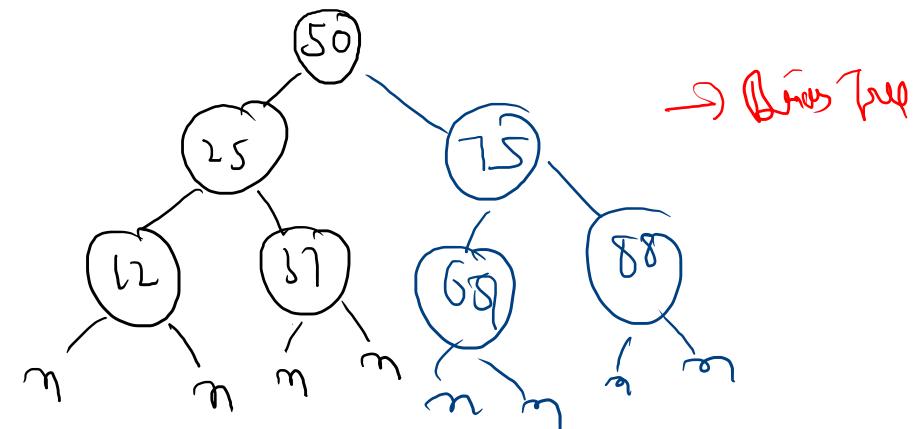
② State =

state = 1 → attach left child

state = 2 → attach right child

state = 3 → go to Pre order

↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
 50 25 12 n n 37 n n 75 67 n n 88 nm



node - status

1 → Left
 2 → Right
 3 → Parent

