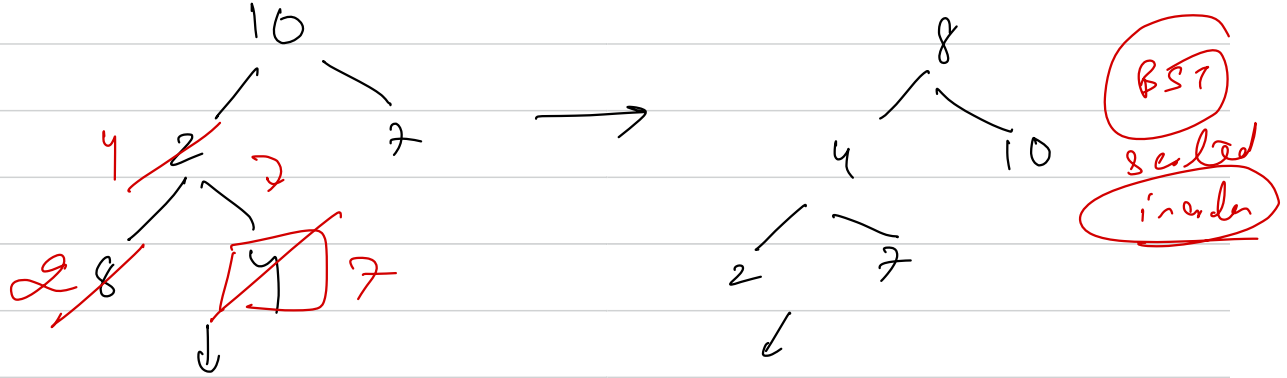
Q: Given a BT, convert it into a BST, keeping the original structure of the tree intact.



↳ Inorder → 8, 2, 4, 10, 7 ⟷ 2, 4, 7, 8, 10

Store → sort → i = 0 1 2 3 4

Space → optimise ?:

↳ O(n log n)

O(n)

n → no. of elements

Q:? Given a binary tree, print it's top view.

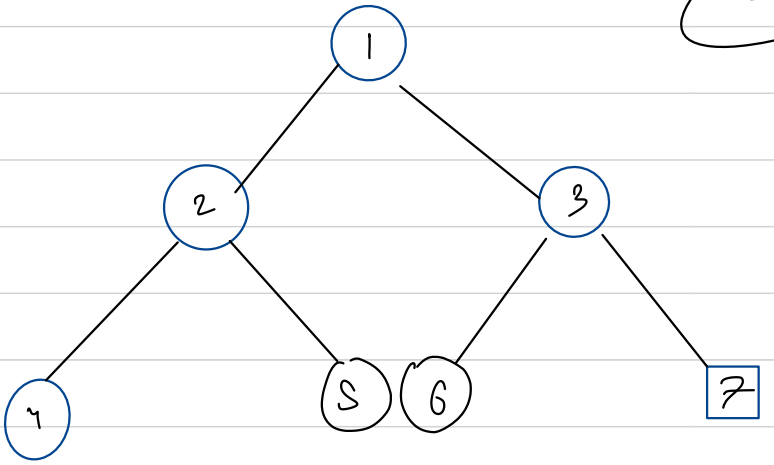
amazon / msft / cred /

zomato

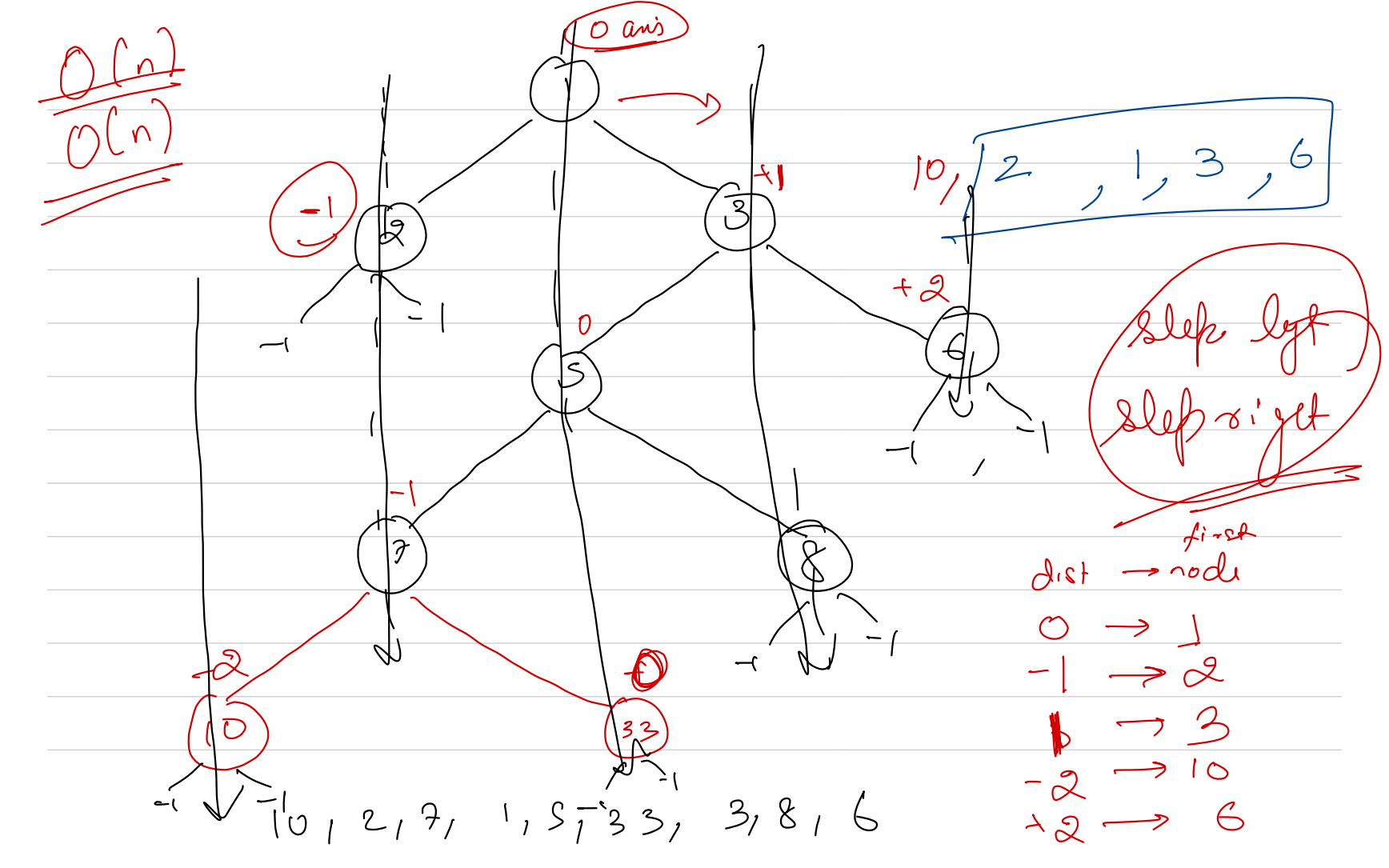
SDE-1

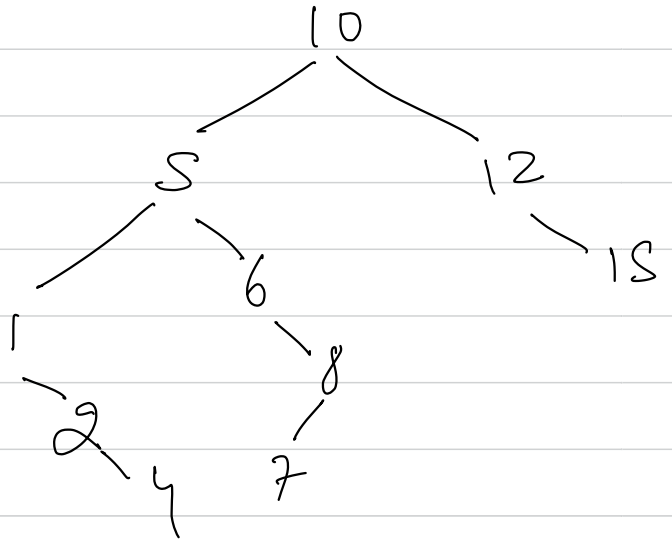
Top View
Bottom view

vertical order traversal

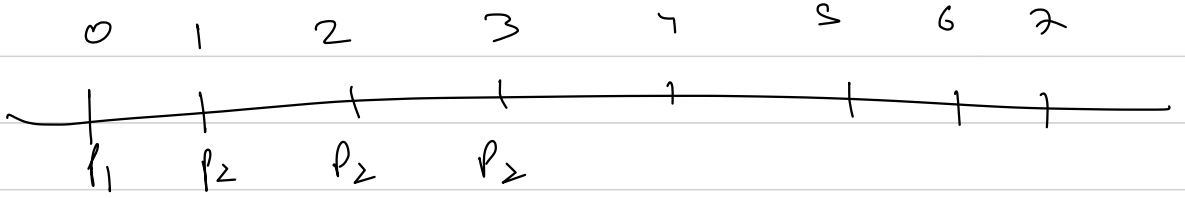


4 2 1 3 7


O(n)
O(n)
0 axis
-1
+1
+2
0
-1
-2
+2
10, 2, 1, 3, 6
Step left
Step right
first
dist → node
0 → 1
-1 → 2
1 → 3
-2 → 10
+2 → 6
10, 2, 7, 1, 5, 33, 3, 8, 6


10
5
12
15
6
1
8
2
7
4

	AT	BT	CT
P_1	0	9	
P_2	1	3	
P_3	2	8	
P_4	3	5	



$\frac{a}{a+m} = \frac{2}{6}$

$\frac{x}{y} = \frac{2}{6}$

$6x = 2y$

$\frac{x}{y} = \frac{2}{6}$

$y + 6 = x$

$\frac{x-2}{y-2} = \frac{2}{6}$

$\frac{y+6}{y} = \frac{2}{6}$

$6y + 36 = 2y$

$y = -9$

$x = y + y$

$\frac{y+2}{y-2} = \frac{2}{6}$

$6y + 12 = 2y - 4$

$6y = 26$

$y = \frac{26}{6}$

y

$5C_3 \times 5C_2$

$\frac{5!}{3!2!} \times \frac{5!}{3!2!}$

10

$\frac{5 \times 4!^2}{x}$

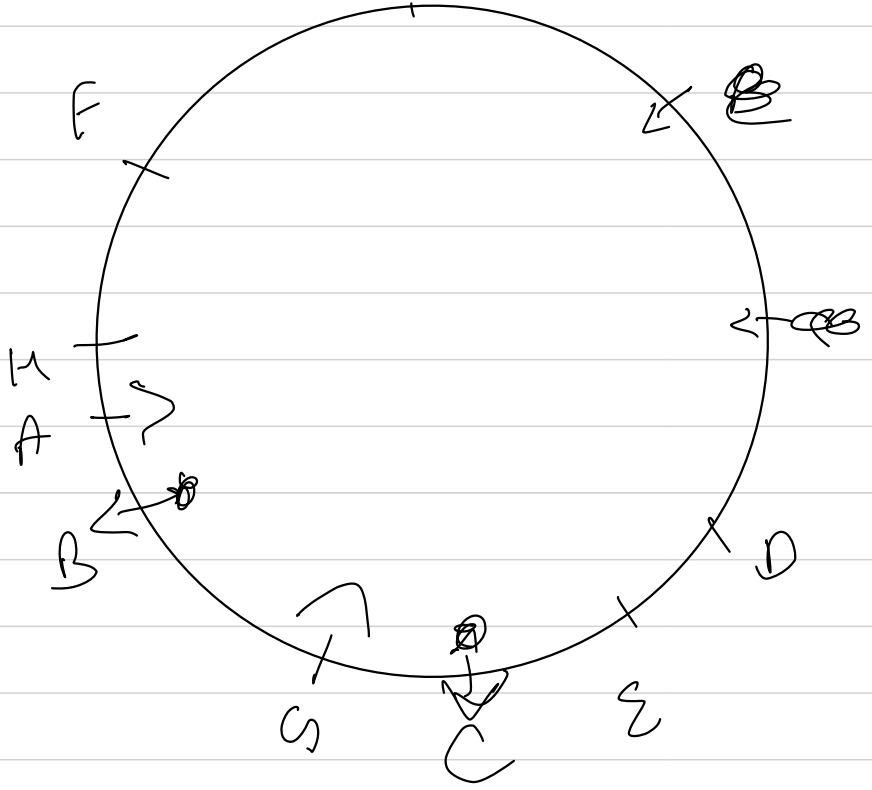
CP of one $p \rightarrow x \rightarrow 4$.

SP of y $p \rightarrow y \rightarrow 5$

$4y = 5x$

$4 \times \frac{25}{100}$

$\frac{100}{4}$


F
G
H
A
B
D
G
C
E

$\frac{x+2}{y-2} = \frac{2}{6}$ $\quad x = y+4$

$\frac{y+4}{y-2} = \frac{2}{6}$

$6y + 12 = 2y - 4$

$6y = 26$

$y =$

$\frac{y+2}{y-2} = \frac{2}{6}$

$6y - 12 = 2y - 4$

$4y = 8$

$y = 2$

$x = 6$

$y = 7$

$x = 9$

$$\frac{x}{y} = \frac{2}{6}$$

$$\frac{y+4}{y} = \frac{2}{6}$$

$$6y + 24 = 7y$$

$$y = 24$$

$$x = y + 2$$

$$= 14$$

$$y + 4 = x + 2$$

$$6x = 7y$$

$$x = \frac{7y}{6}$$

$$y + 4 = \frac{7y + 12}{6}$$

$$6y + 24 = 7y + 12$$

$$y = 12$$