

5

Time Limit :  $n \log^2 n$

mem :  $n \log n$

$10^6 \times 4 \text{ byte}$

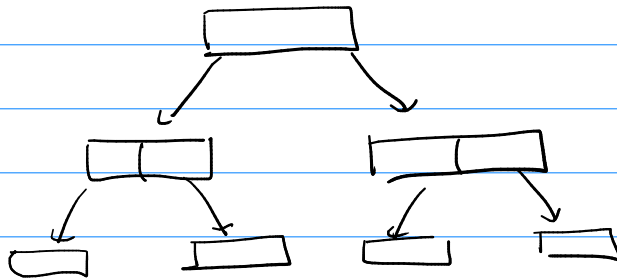
$4 \times 10^6 \text{ byte}$

4MB

4000 KB

28000 KB

$n \log n$

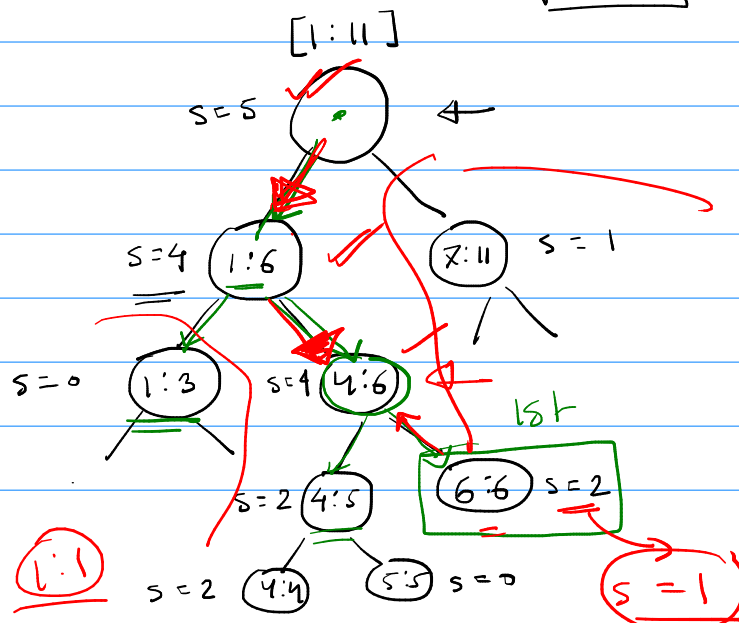


1	2	3	4	5	6	7	8	9	10	11
0	0	0	0	0	0	0	0	0	0	0
↑	1	↑	↑	↑	↑			↑	1	
			+1	+1	+1			+1		

+ 9  
+ 6 + 4

3rd

6



3rd

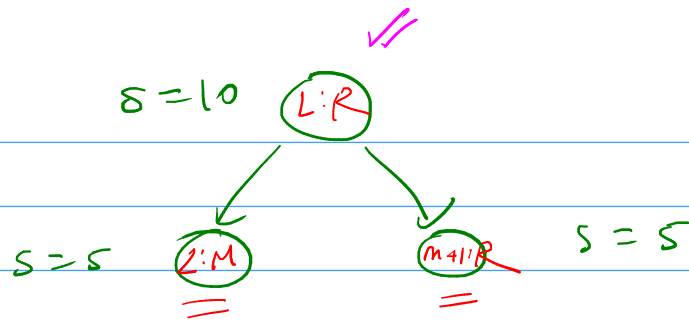
4:6

3rd

s=0 1:1

s=1

7<sup>th</sup>  
element



solve(node, 7)

if  $\text{node.left.sum} \geq 7$ :  
    solve(node.left, 7)

else:  
    solve(node.right,  $7 - \text{node.leftsum}$ );

↓  
[4n]

10<sup>6</sup>

2n

{

⋮  
n/16  
n/8  
n/4

○ ○ ○ ○ ○ → n/2  
○ ○ ○ ○ ○ ○ ○ ○ ○ ○ → n

$$n + \frac{n}{2} + \frac{n}{4} + \frac{n}{8} + \frac{n}{16} + \dots = n \left( 1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots \right) = \underline{2n}$$

Harmonic:  $\frac{1}{1} + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \dots = \sum_{n=1}^{\infty} \frac{1}{n}$

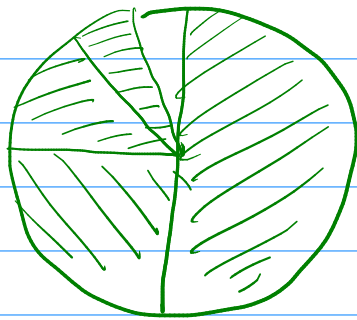
$$r = \frac{1}{2}$$

↓  
 $a, ar, ar^2, ar^3, ar^4, \dots$  nth term  
 $= \frac{a}{1-r}$   $\frac{a(r^n - 1)}{r - 1}$

$r < 1$

↓

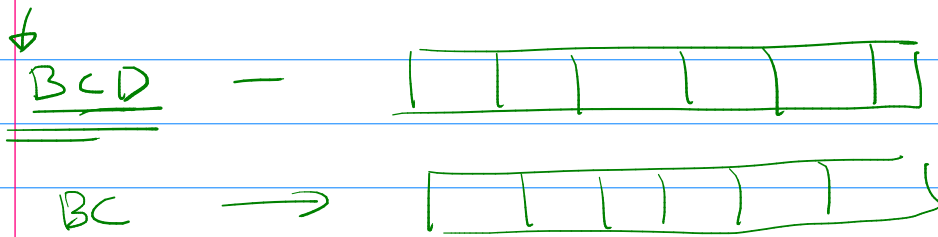
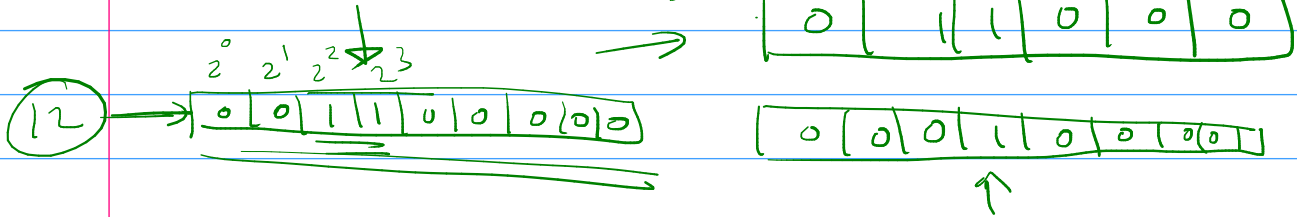
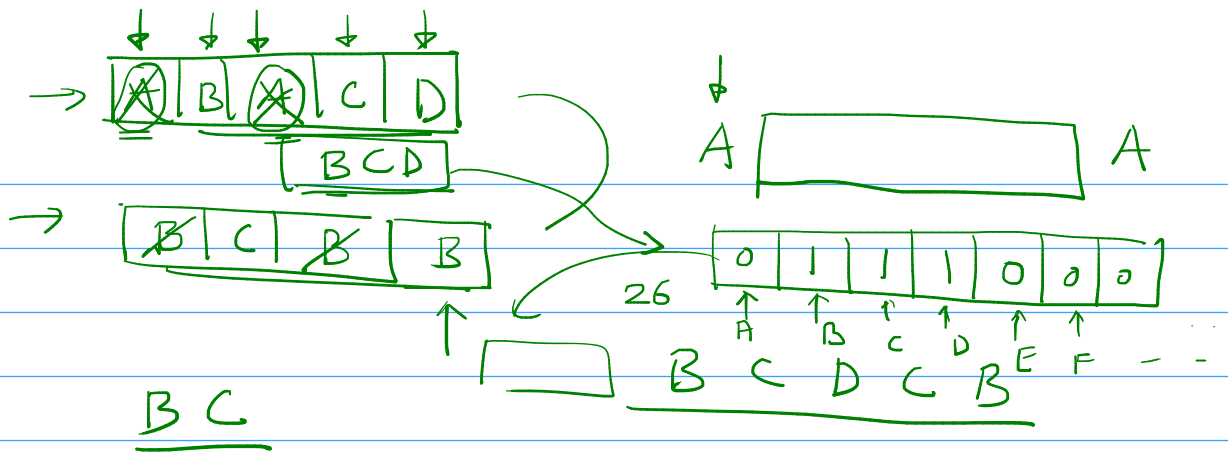
$$= \frac{1}{1 - \frac{1}{2}} = \boxed{2}$$



2 KG

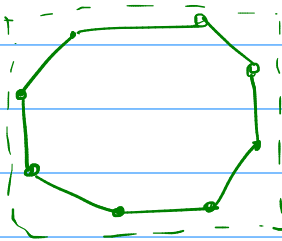
$$1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \dots = \textcircled{2}$$

walking over Segment  
Tree



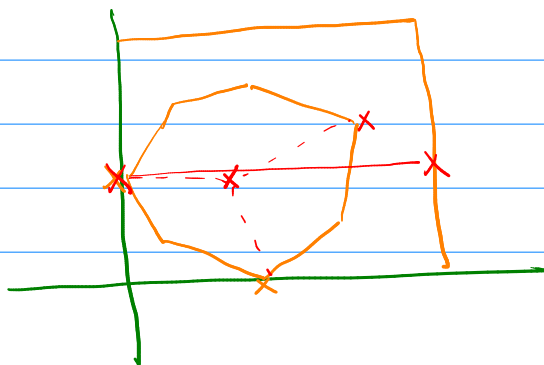
$$n \times 26 \times \log n$$

no

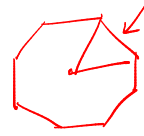
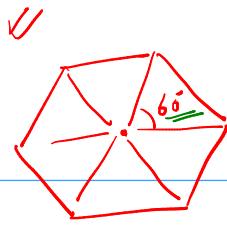


$2n$ -gon

$2n$

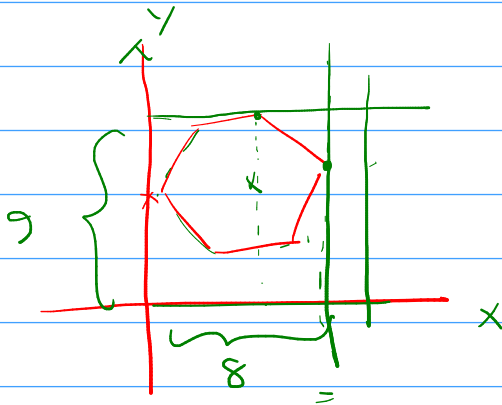


3 - at least

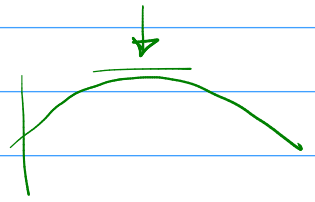


$$\frac{\pi}{8} =$$

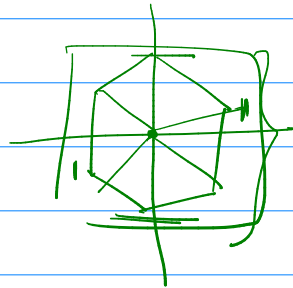
$$\frac{180}{8} = 22.5$$



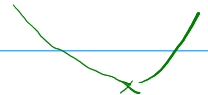
$$\theta =$$



X



Y



$$L + \frac{H-L}{3}$$

$$\theta_L = 0$$

$$\theta_H = \frac{\pi}{2n}$$

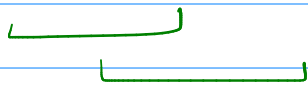
→

$$\theta_1 =$$

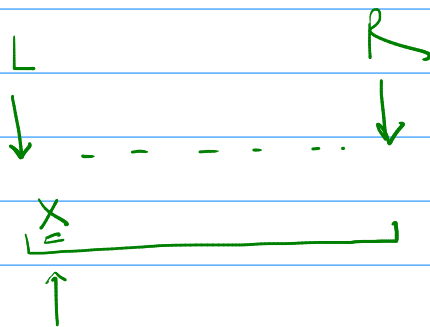
→

$$\theta_2 =$$

$$H - \frac{H-L}{3}$$



X



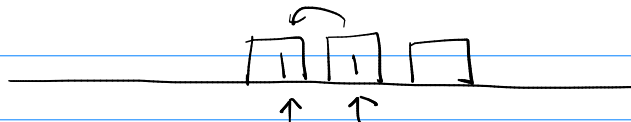
X  
↑

↓  
X  
=

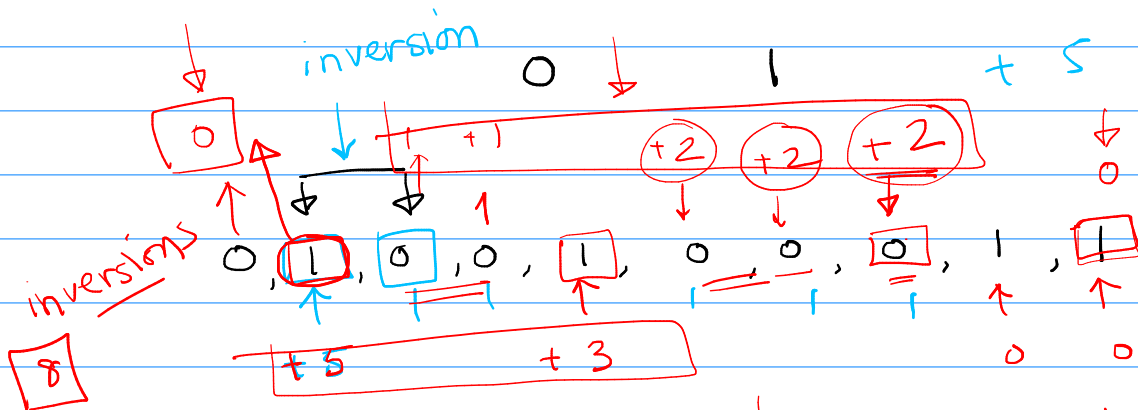
$$(-1) - (0)$$

$$= (-1)$$

1 1 1 1



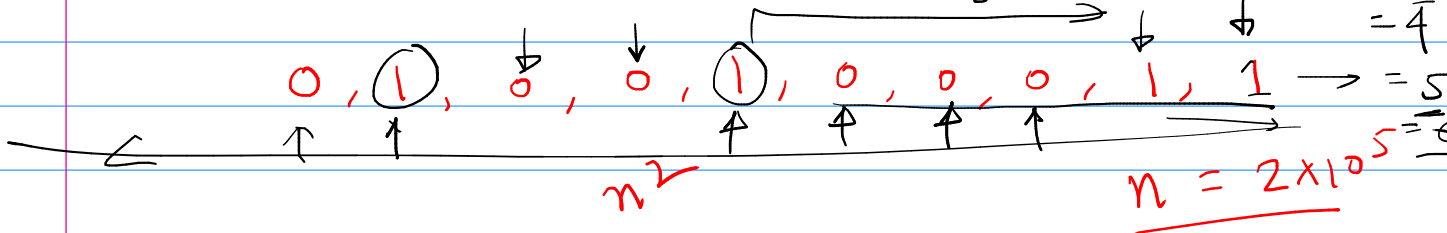
↓  
+ 1



earliest 0 → 1  
last → 1 → 0

$$\text{ans} = 0 + 0 + 3 + 5 = 8$$

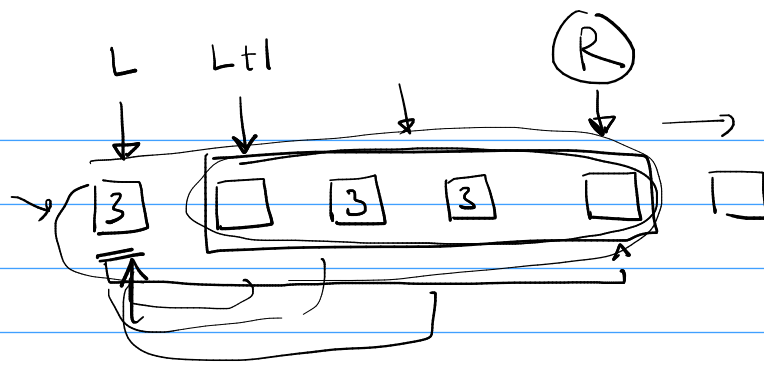
$$\text{zero} = 0 + 1 + 1 = 2$$



$$4 \times 10^{10}$$

$$= 400 \text{ sec}$$

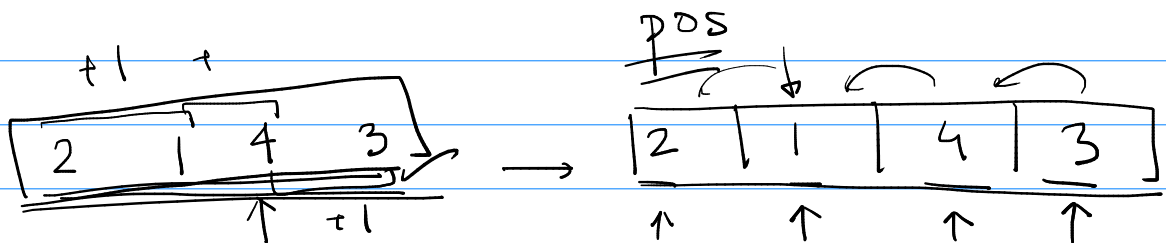
$> k$



First  $R$ , such that  
the sub- $[L:R]$  contains  
more than  $k$   
distinct values ✓

$$\underline{R-L-1}$$

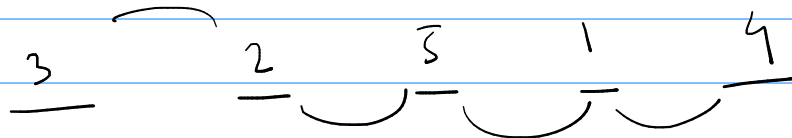
$$ans = 1$$



$\rightarrow 1$   
 $\rightarrow 2, 3$   
 $\rightarrow 4$

4, 2, 1, 5, 3

pos:



$$ans = 1 + 1 + 1 = \boxed{3}$$

J  
2

L

pos:

