

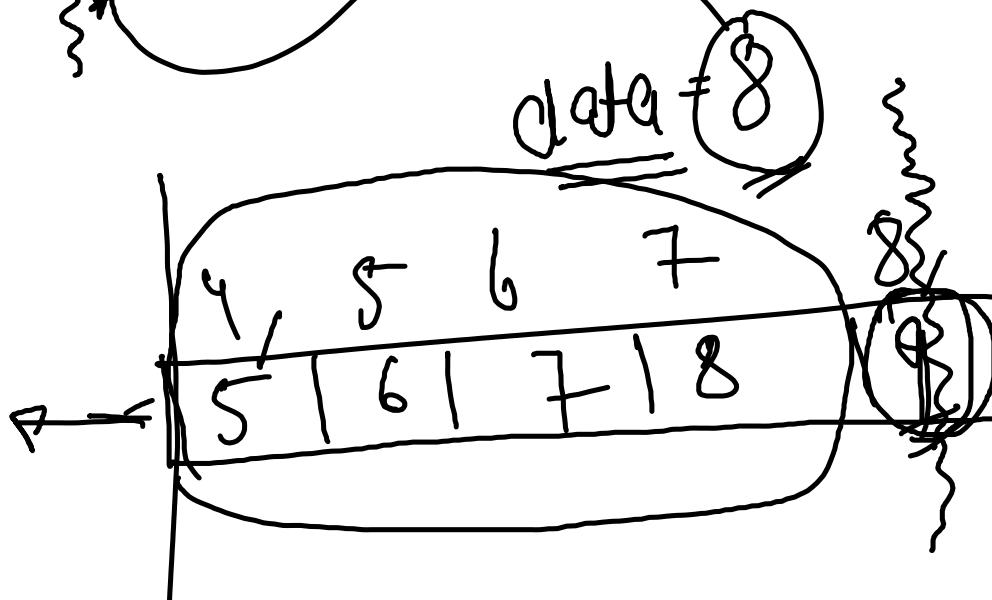
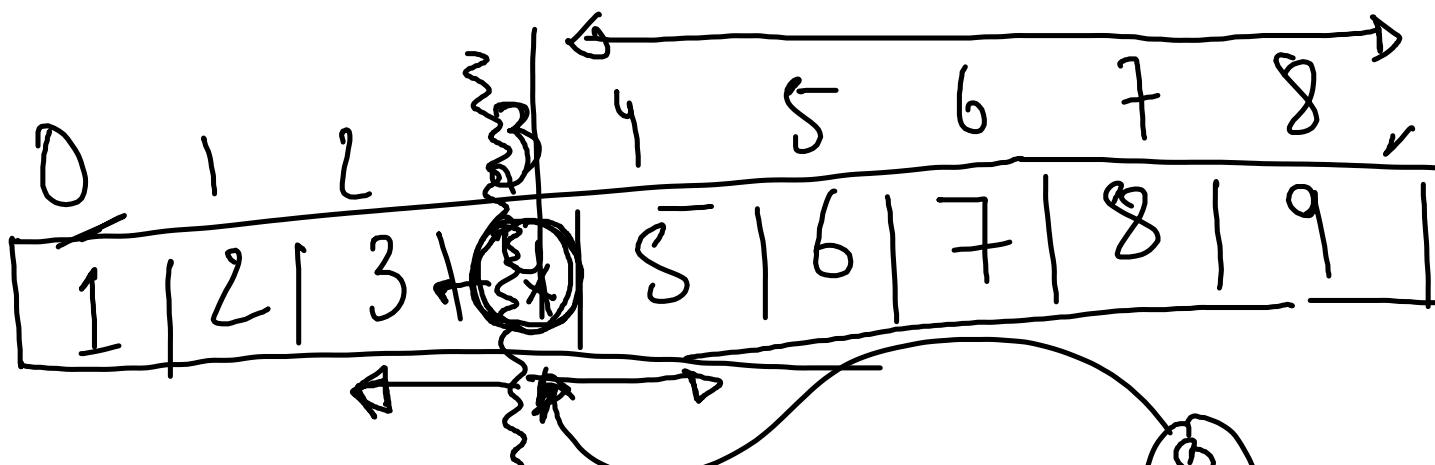
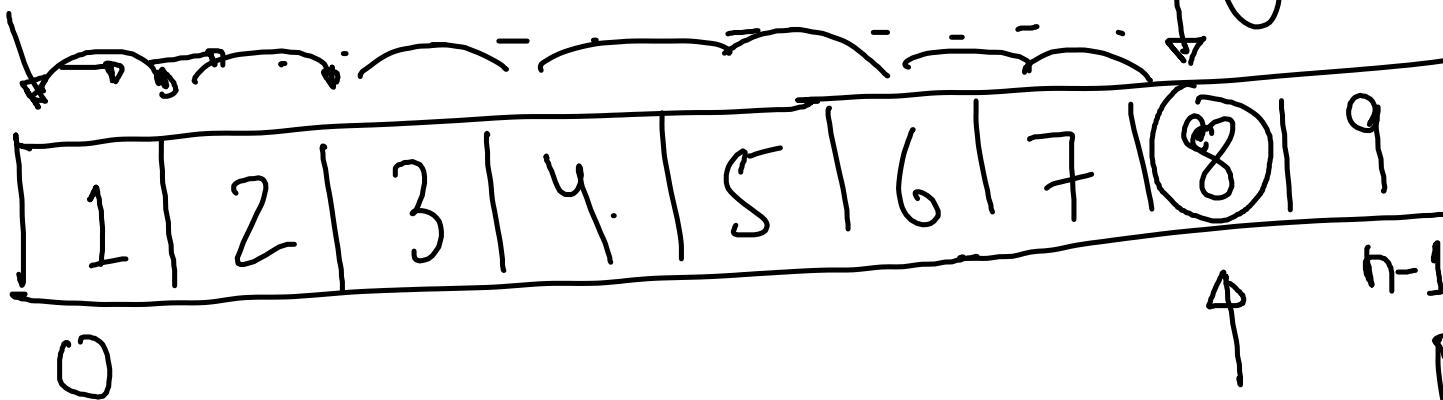
Divide And Conquer

Saturday, 14 March 2020

4:43 PM

Binary S

8 traversals



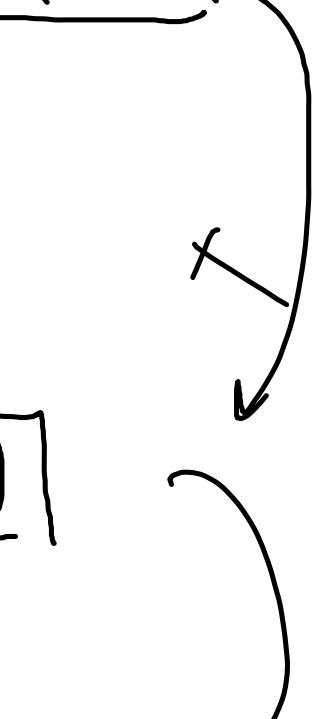
search

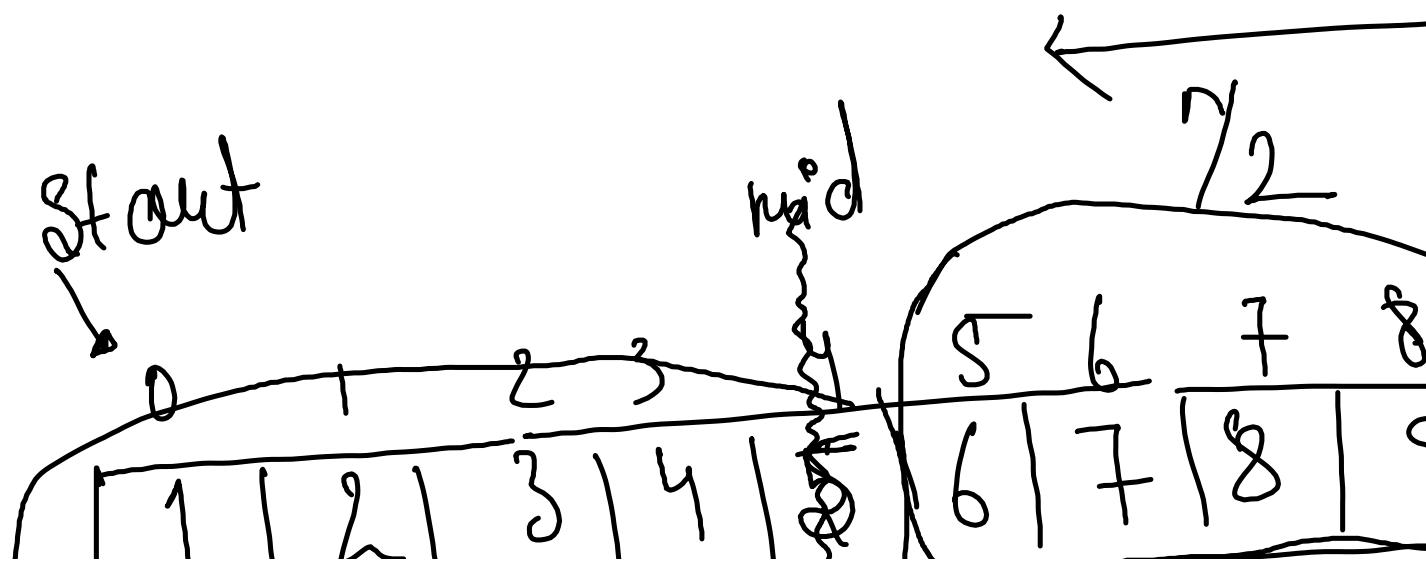
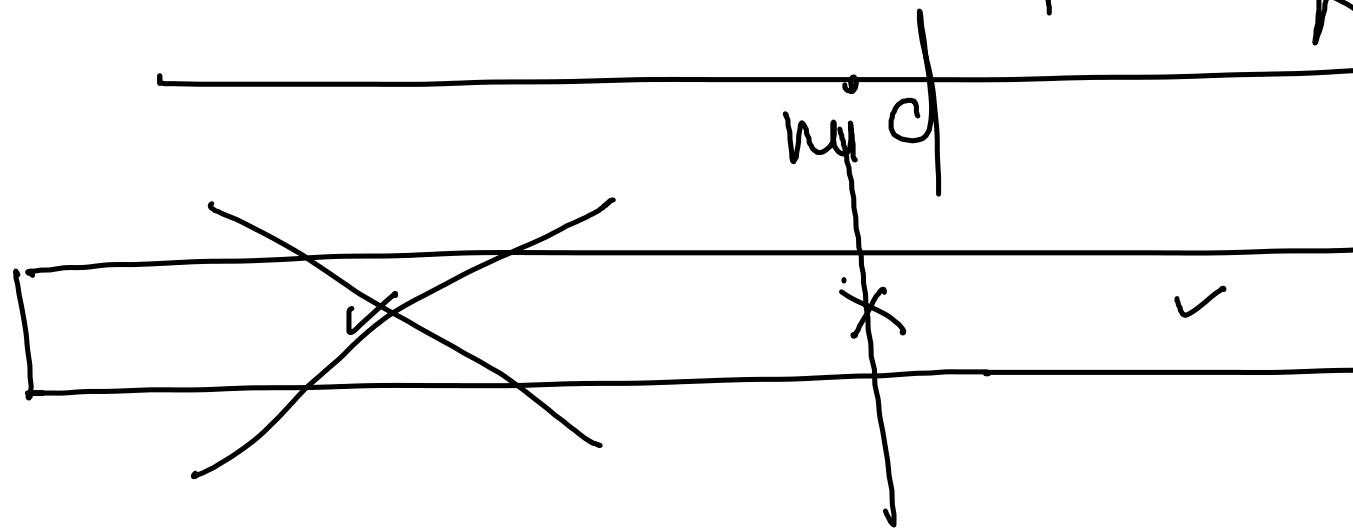
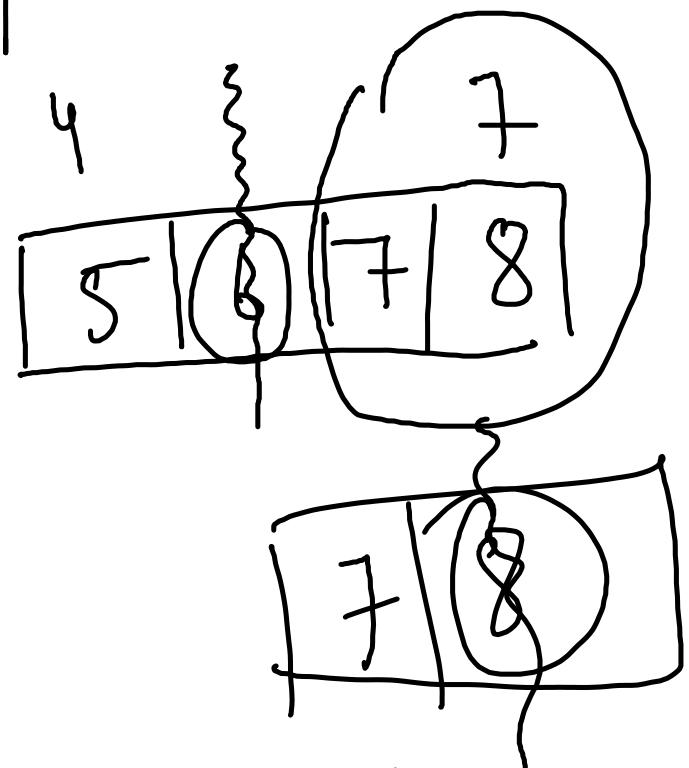
data = 8

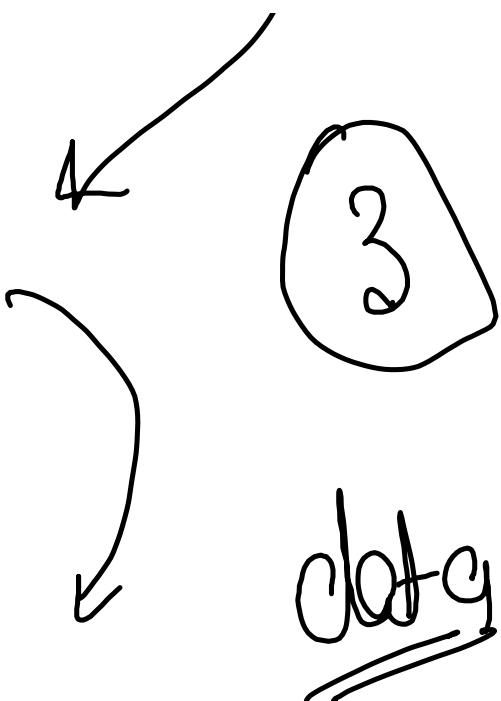
]
x -1

[O(n)

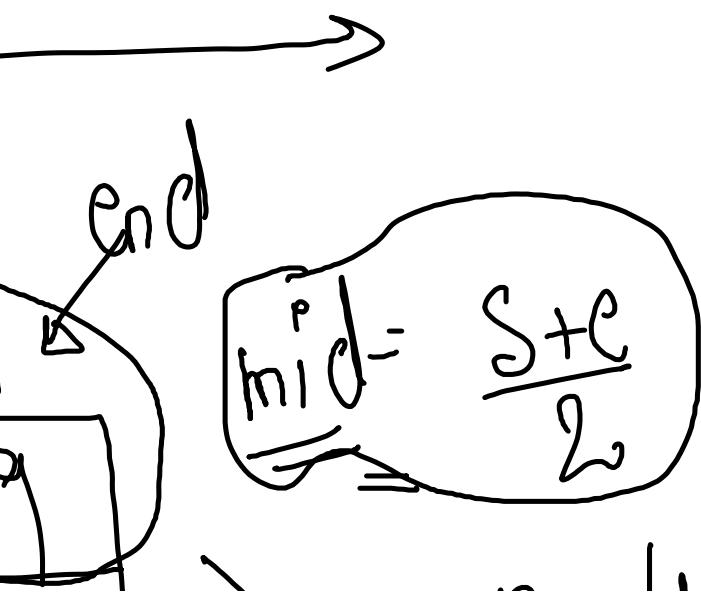
10 11 12 13

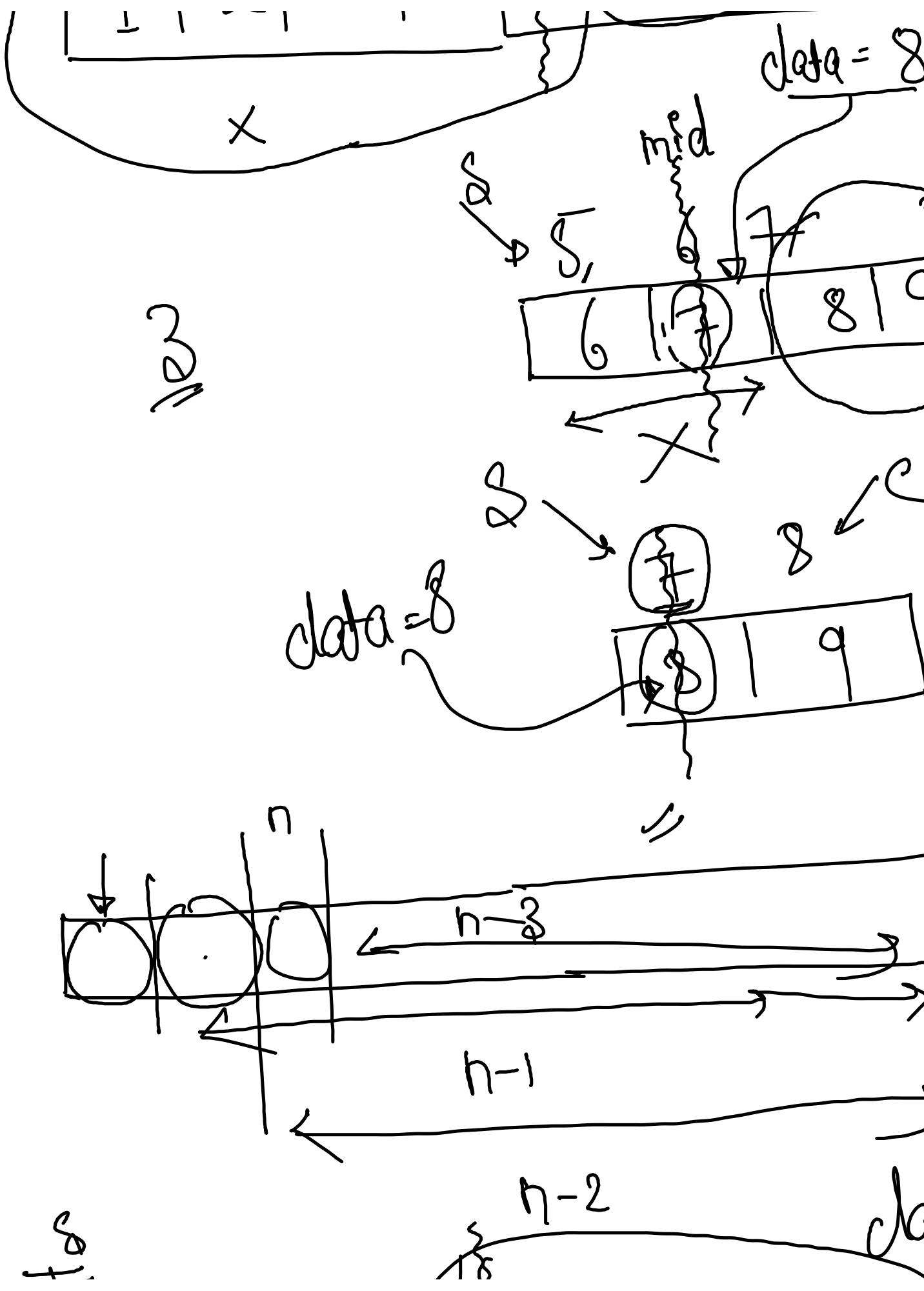






data





P
 r
 θ
 end
 P
 clockwise

$$0 + \frac{8}{2} = 4$$

$$\frac{S + C}{2}$$

$$0$$

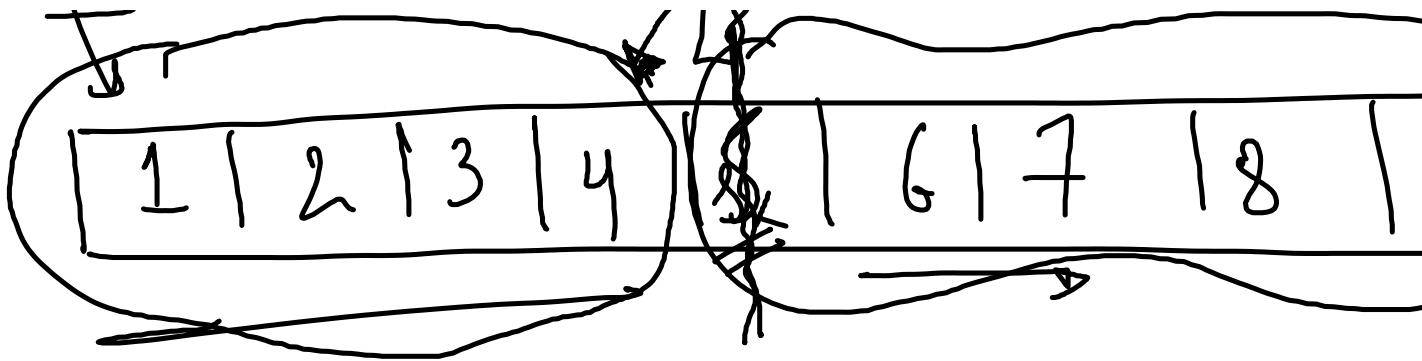
$$\text{Bis} = \frac{S+C}{2}$$

$$\Rightarrow \frac{7+8}{2}$$

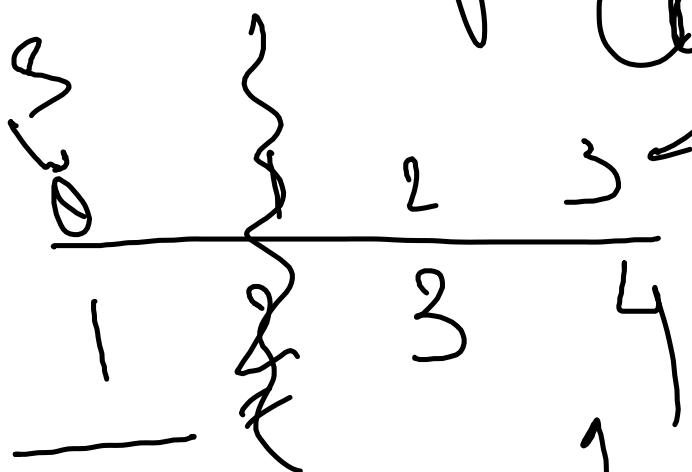
$$\Rightarrow \frac{7}{2}$$

O(n)

$$\text{at } a = -1$$

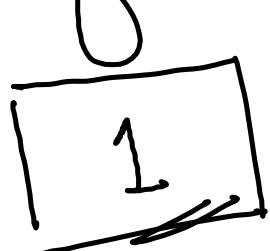


if (arr[mid]) > data
 $\text{cond} = \text{mid} - 1$



$\text{mid} = 1$
 arr[mid]

$\text{c} = \text{mid} - 1$
 $\Rightarrow 0$



arr[mid]

$\text{mid} = 0$

$\dots - 1$

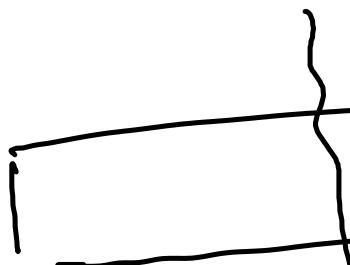
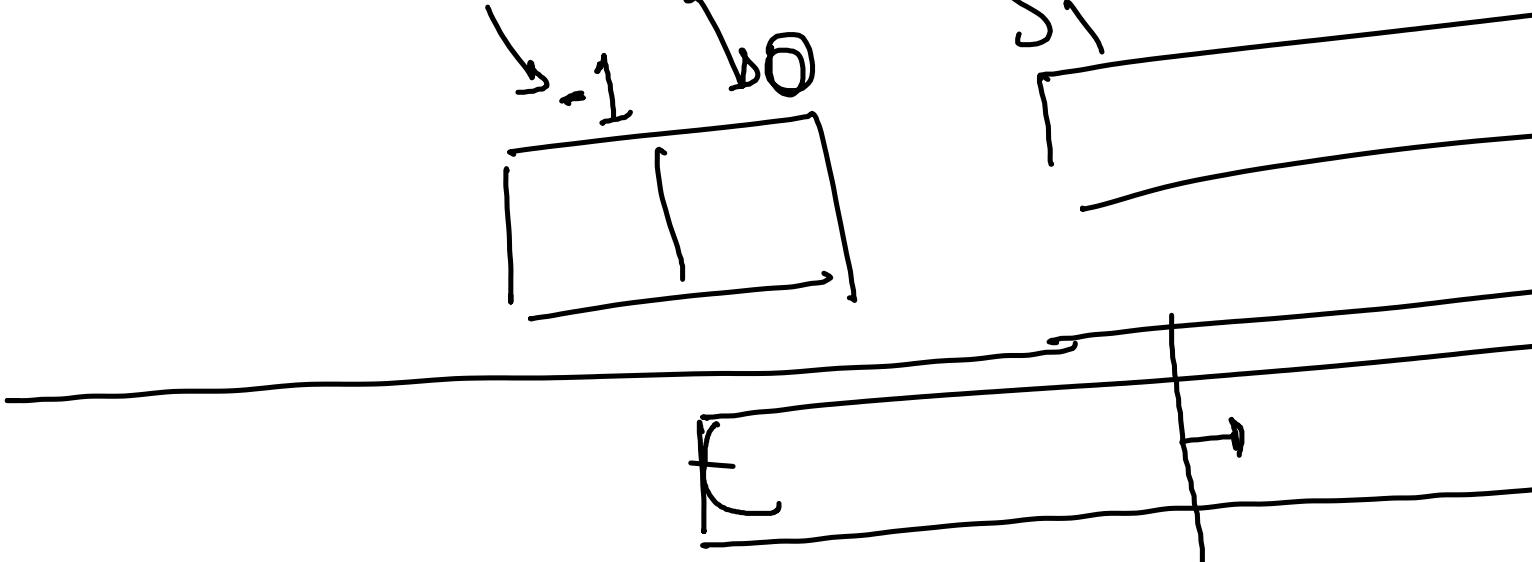
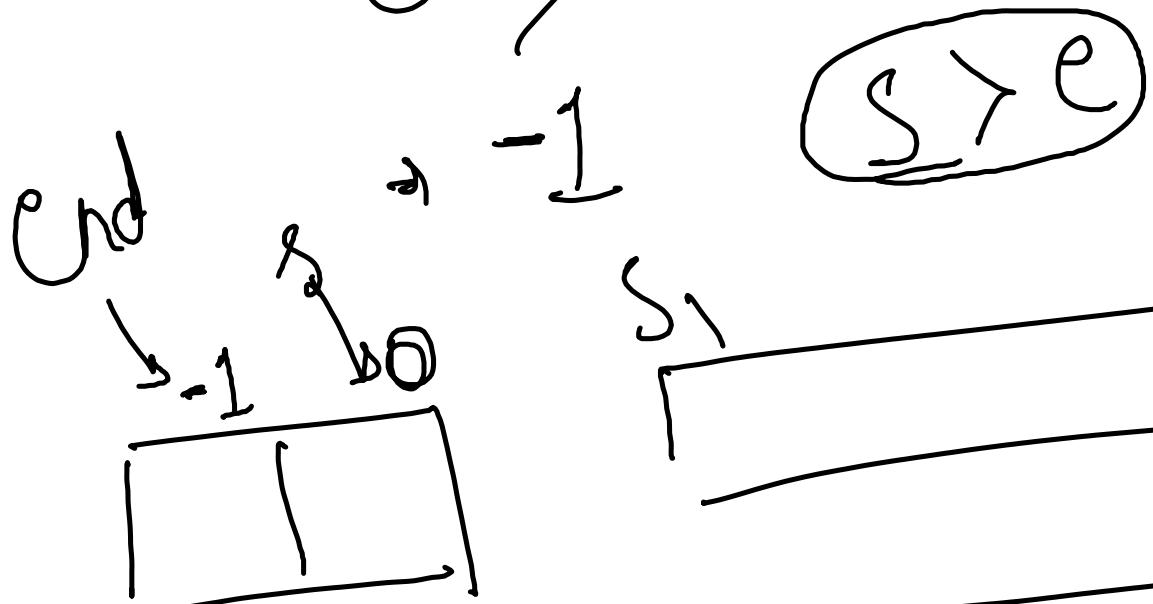
$m_i d = 4$

$\{ \} = \text{data}$

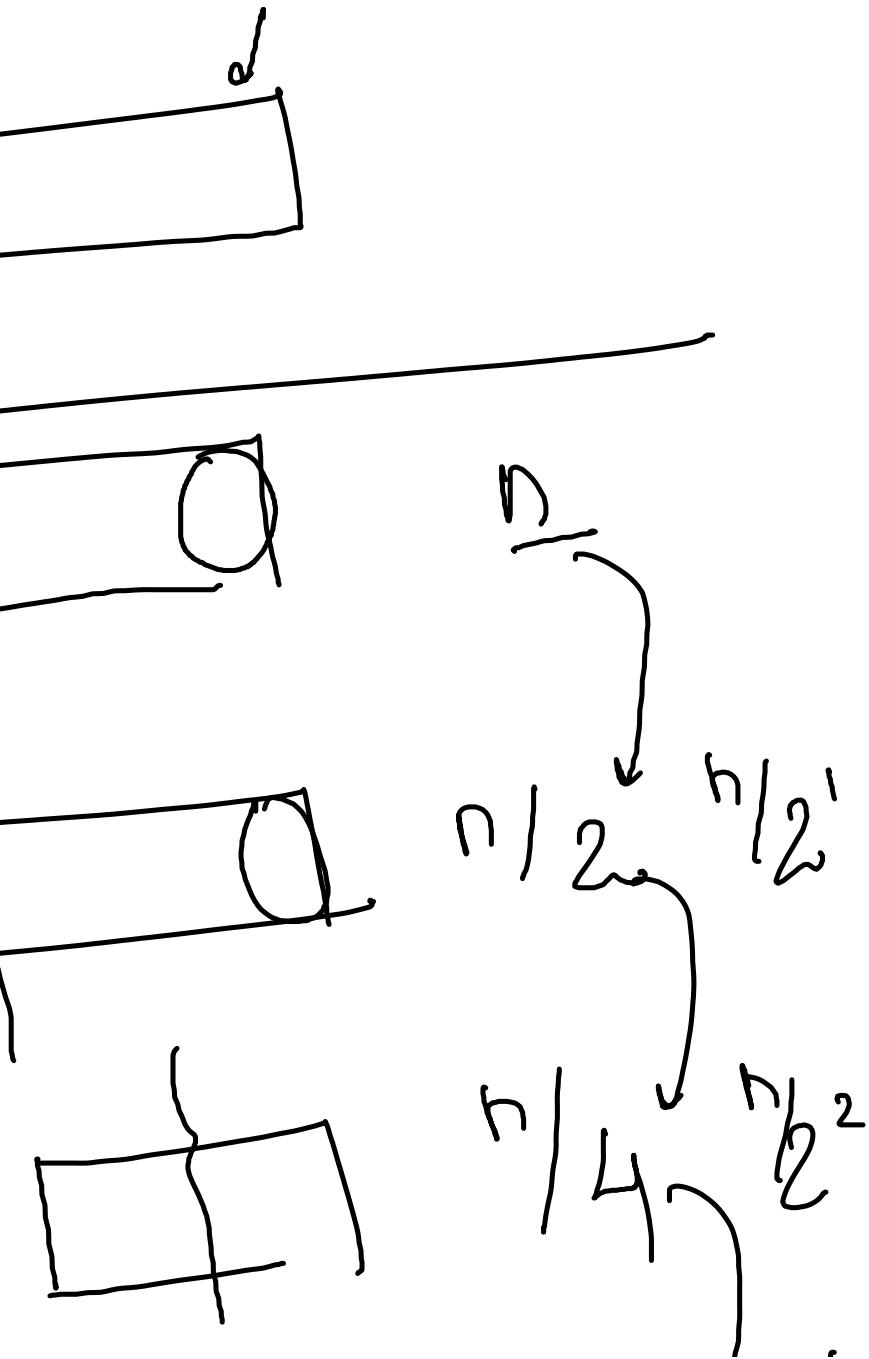
$\vec{a}_j^0 = \text{data}$

~~arr[mid] > arr[
mid]~~

$$c = \cancel{mid}^0 - 1$$



\times Metoden - 1



$$\frac{n}{2^k} = 1$$

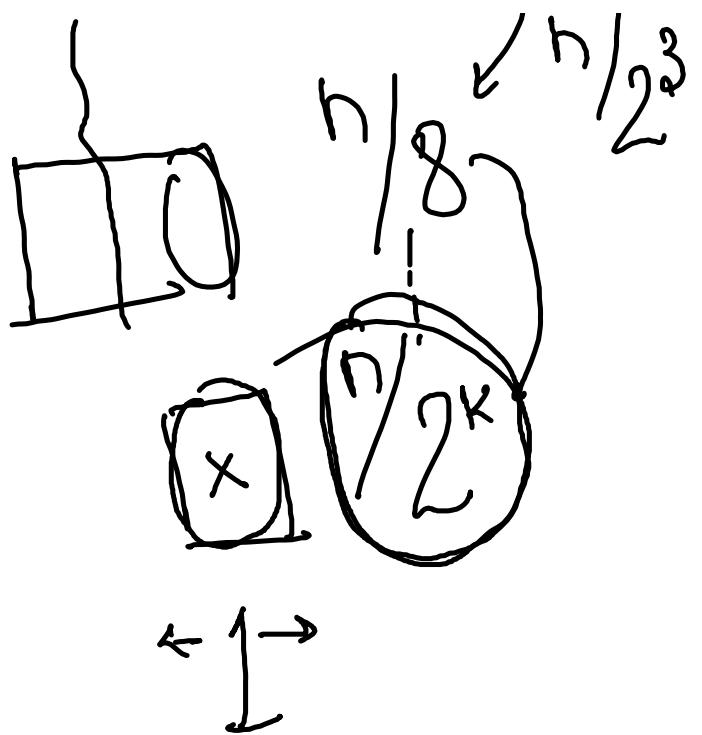
$$n = 2^k$$

$$\log_2 n = k \log_2 2$$

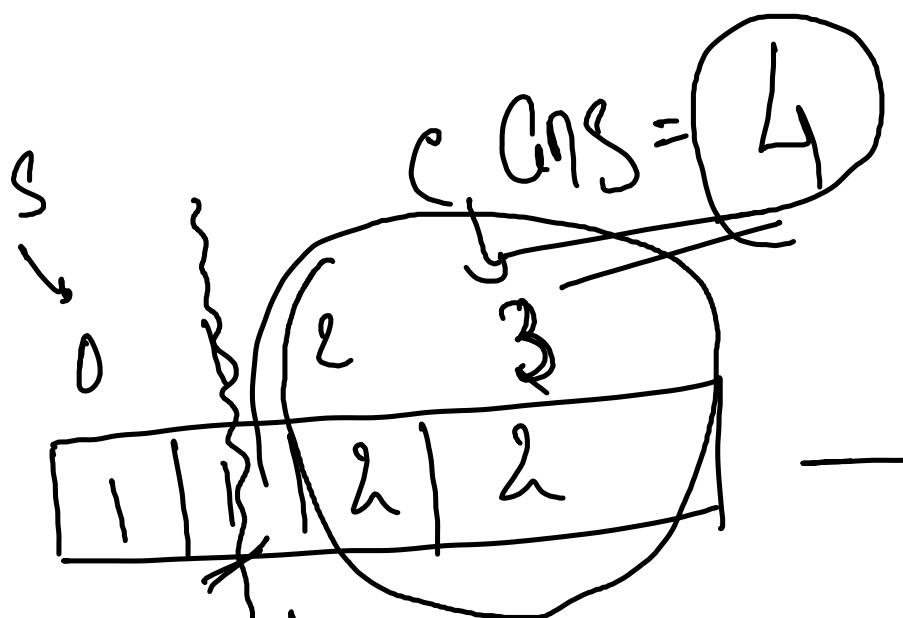
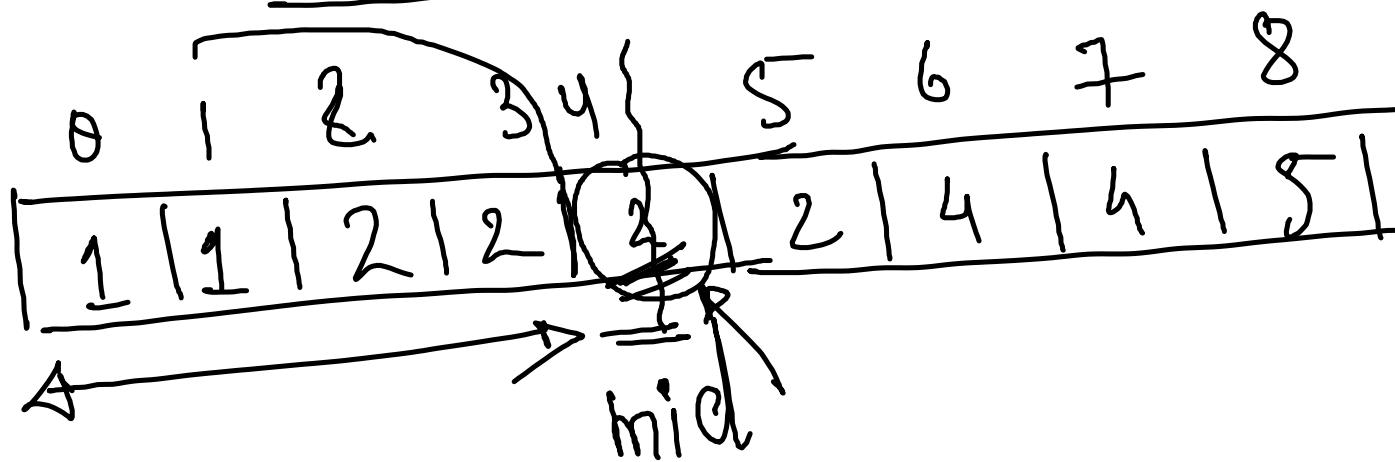
$$k = \log_2 n$$

BS $\rightarrow O(n)$ —

BS $\rightarrow O(\log n)$ —



Lower Bound



$\text{area}[\text{mid}] < \text{data}$

$$S = \text{width}$$

9
6

data = 2

O(log n)

3v
2 1 2

Size

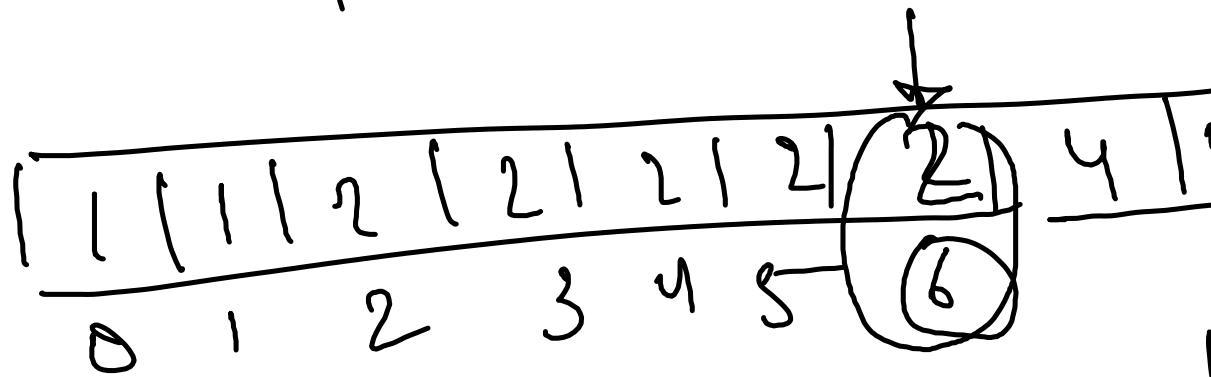
~~ans[mid]~~ == data

ans

/mid

c = mid - 1

Upper Bound | 6



located Ans

18

S T 7 1 2 3 4

$C \rightarrow 1$

est OCL

4 15 + 6

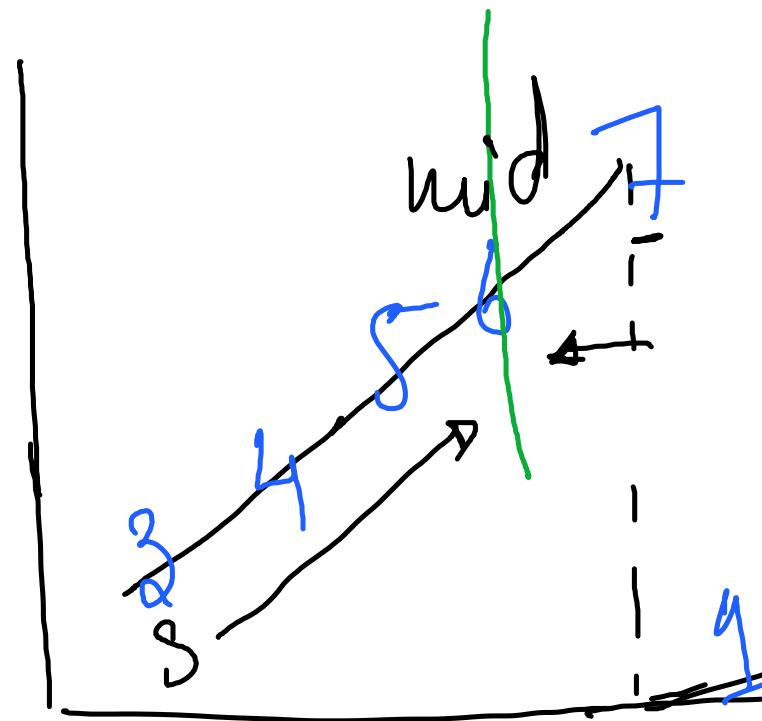
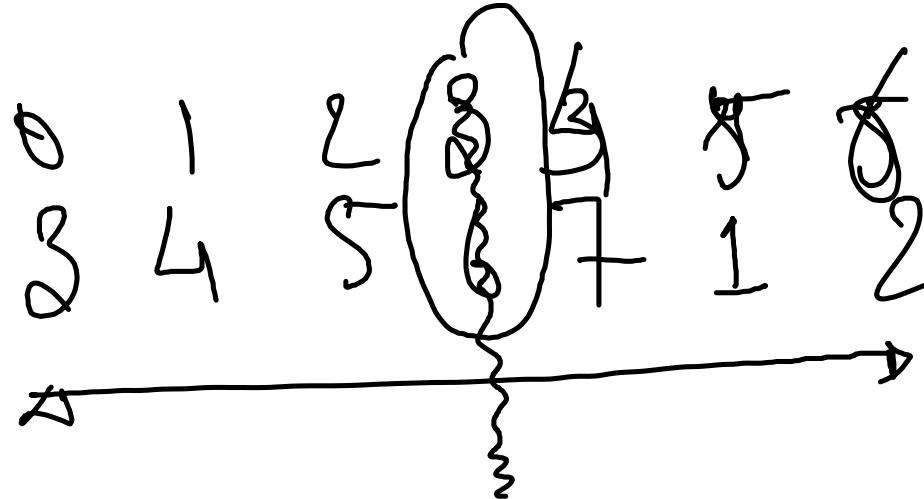
data = 2

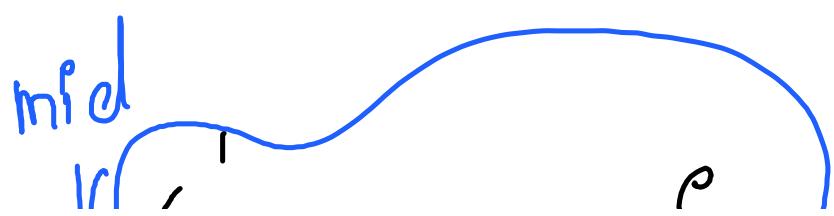
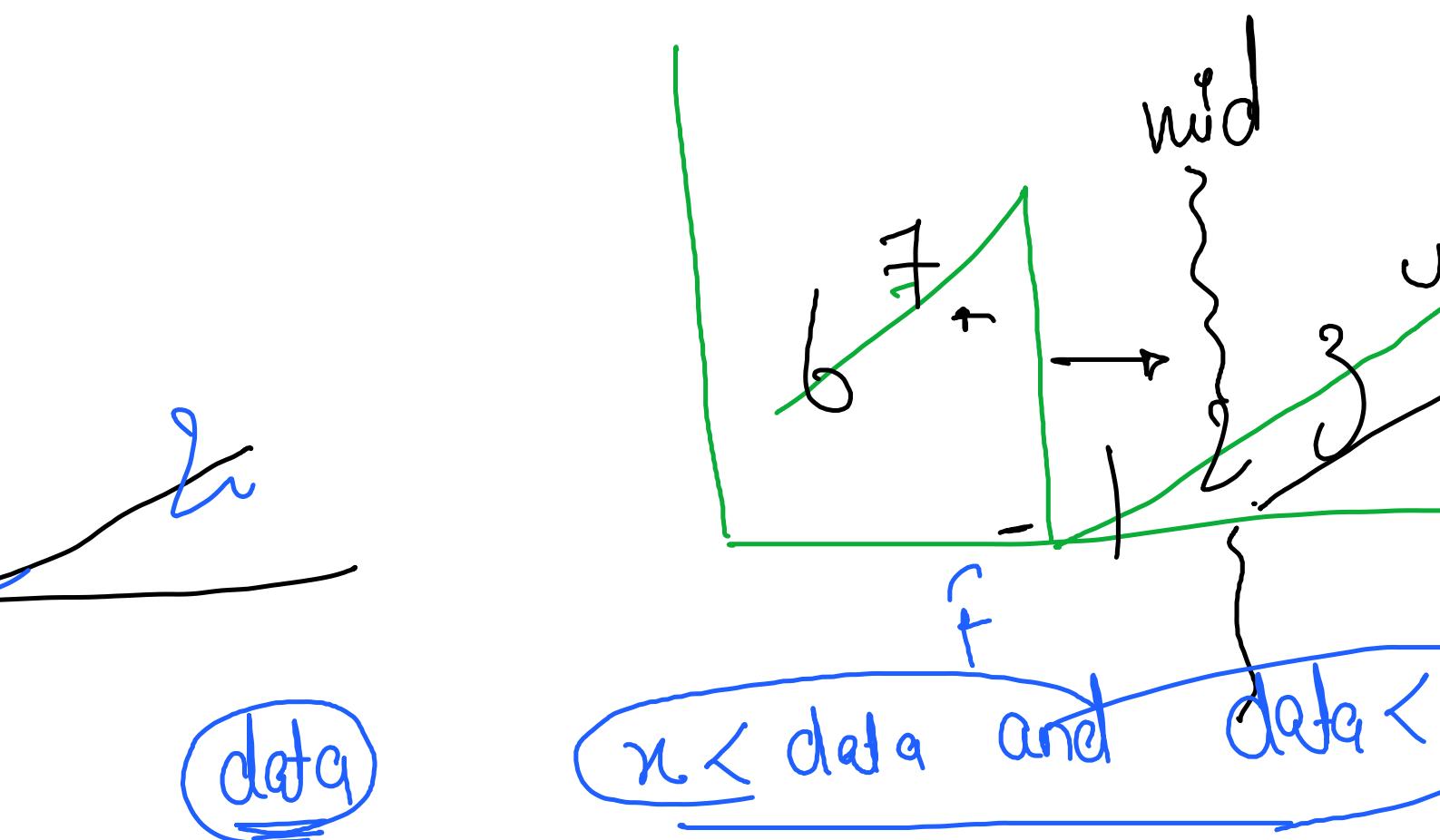
Home work

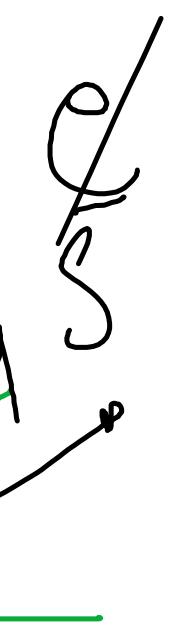
may
— J

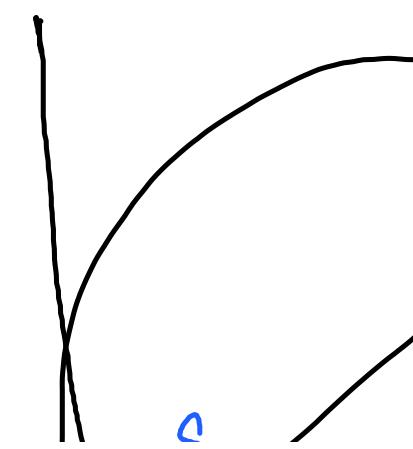


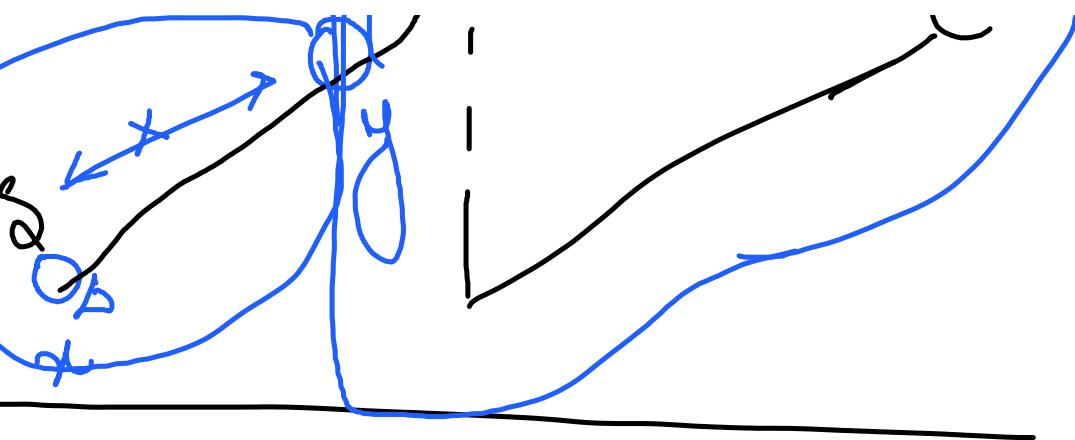
$O(N)$
 ~~$\log n$~~



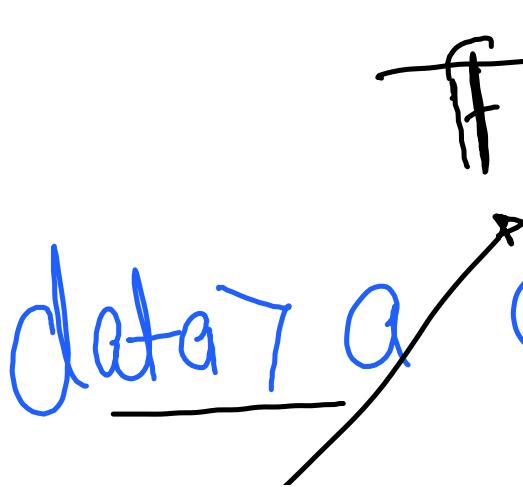
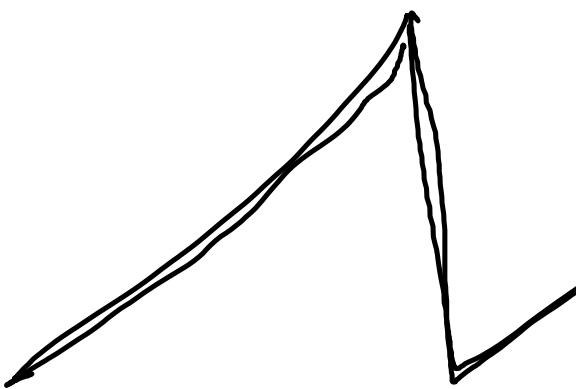
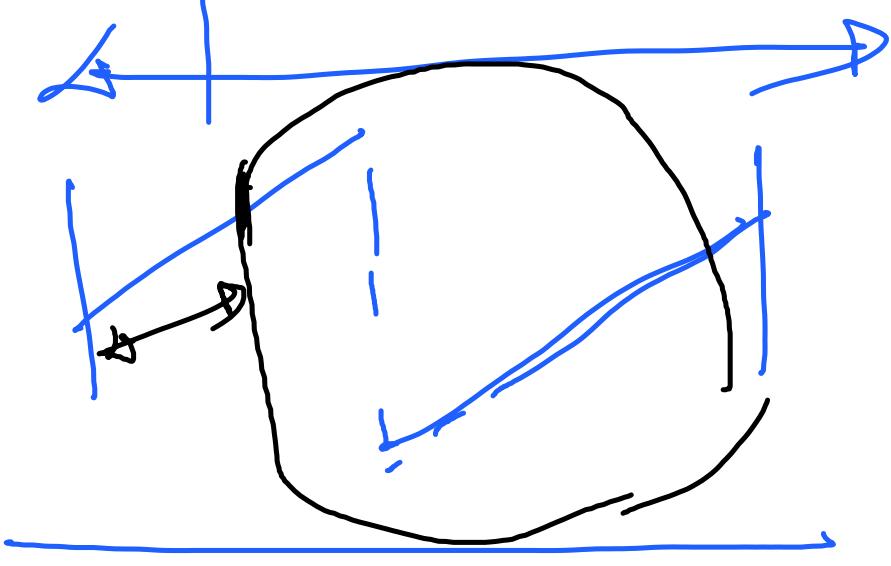


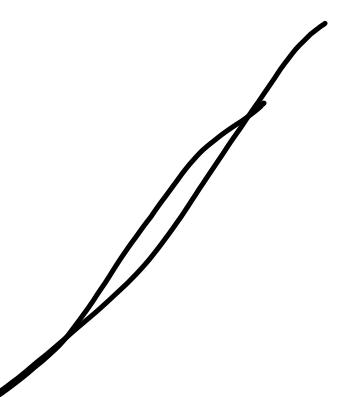






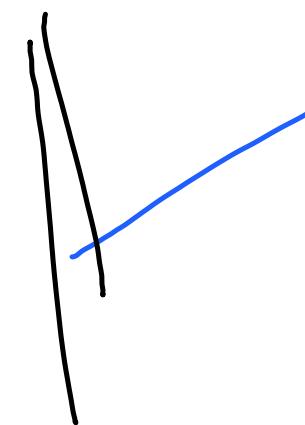
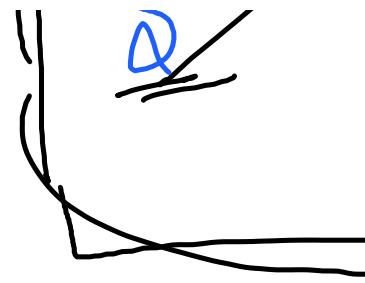
problem

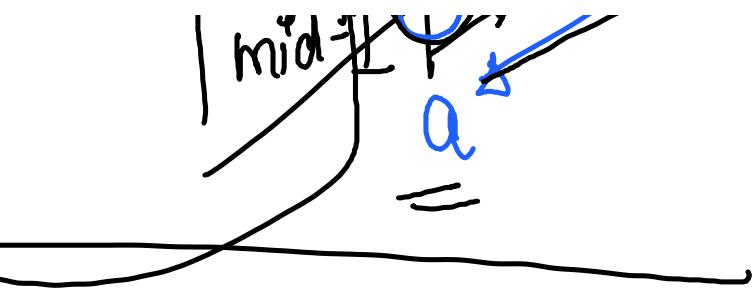




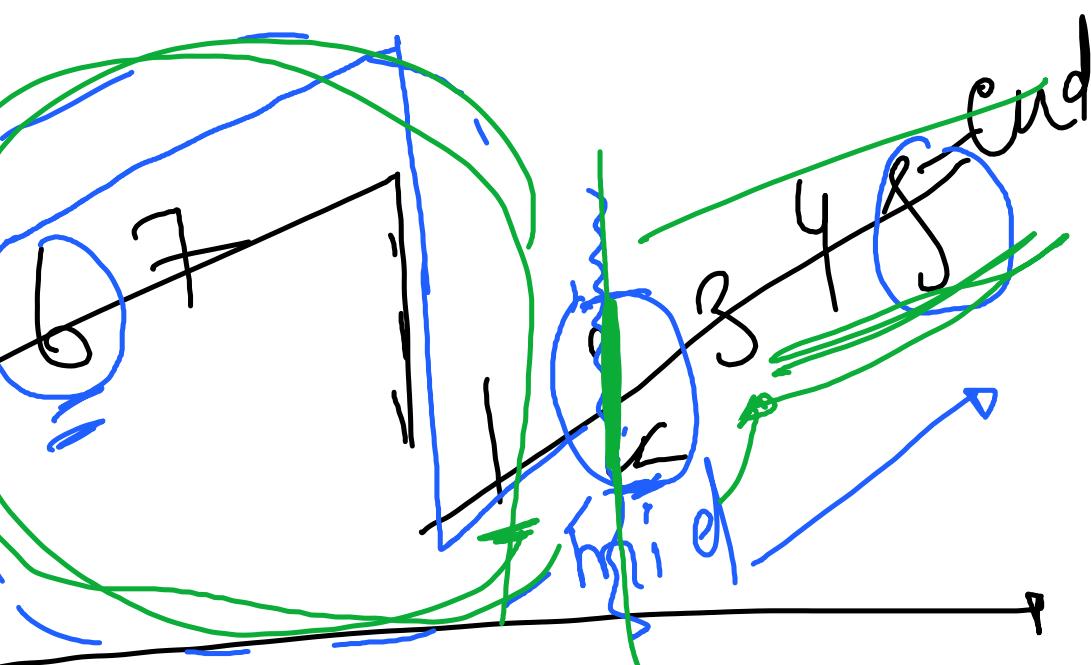
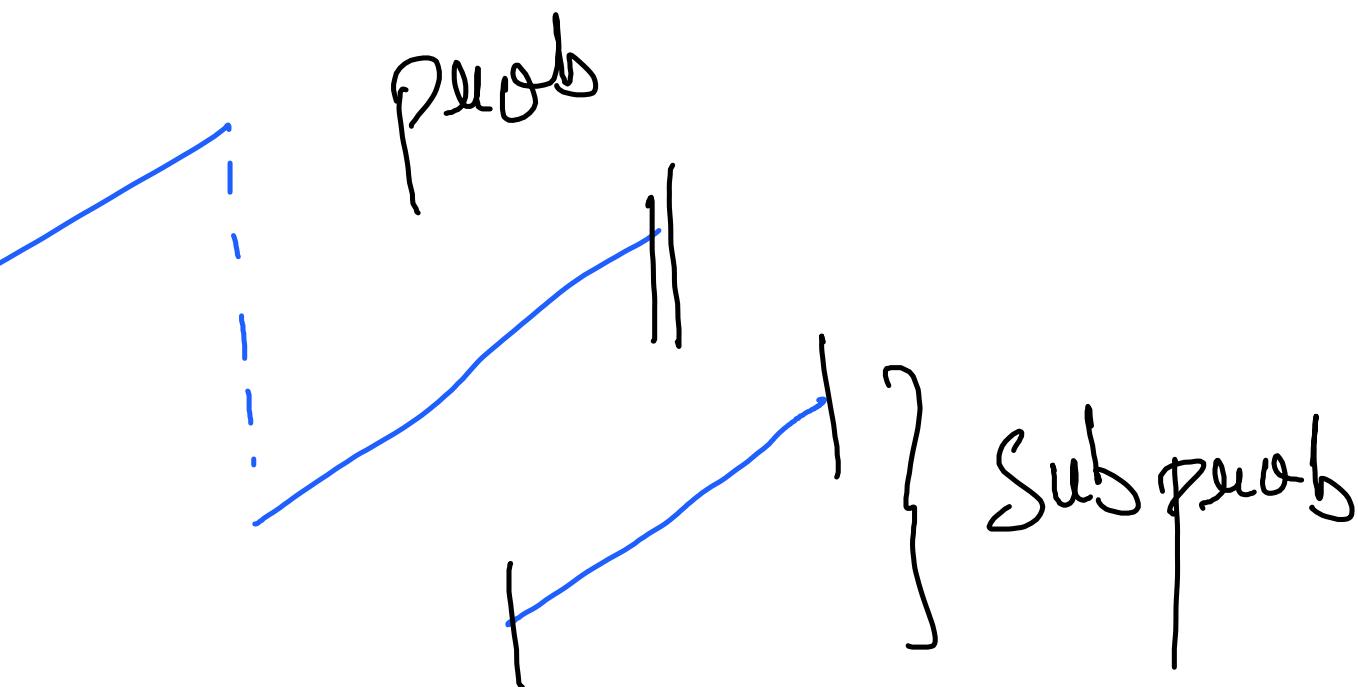
Subprob

and data < b





$$g = \text{mid} + 1$$



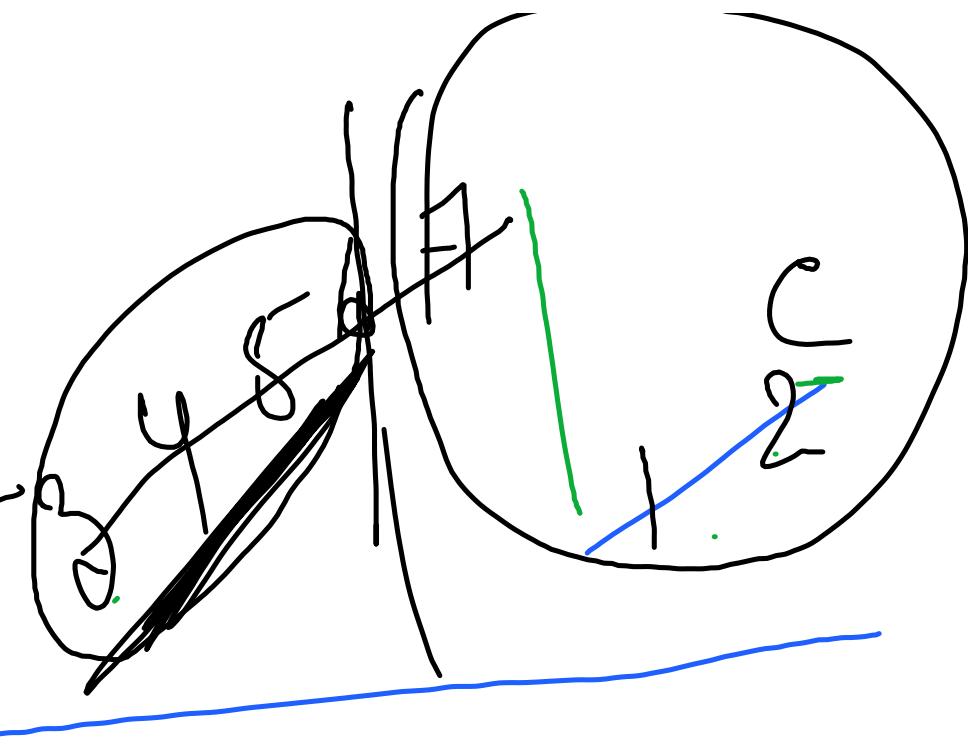
24

Point

[10, 20]

60

m



problem

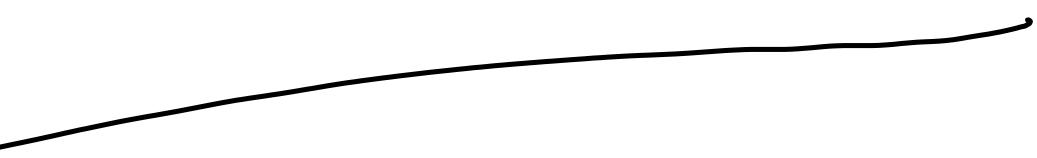
, 3, 0, 4, 0, 1
in Time

$$k = 2$$

google | Coeden

0 1

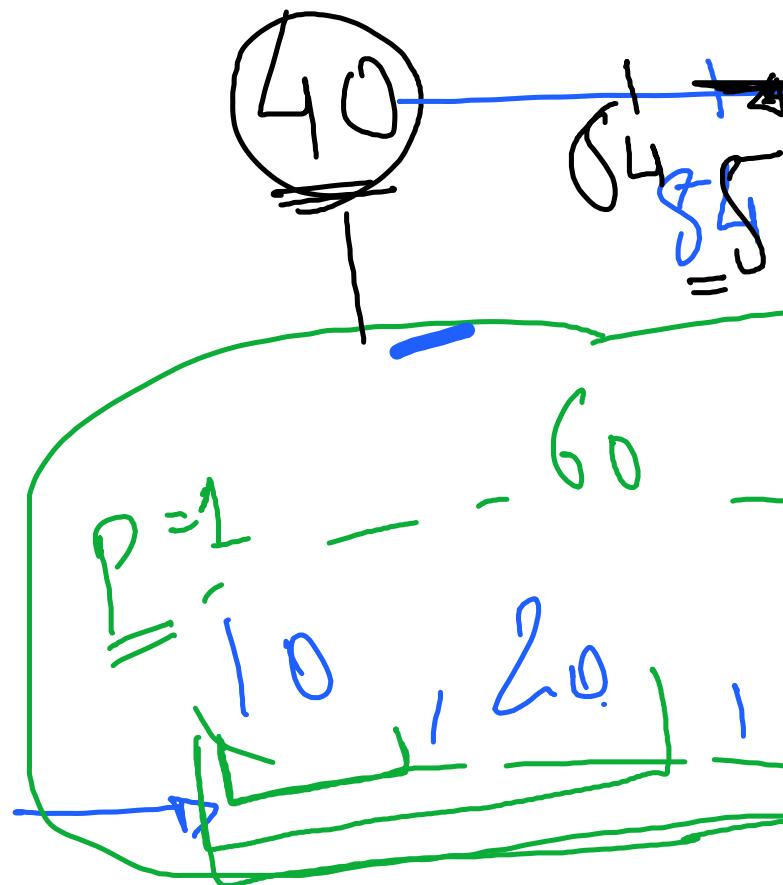
$\approx \mathcal{Z}^r$



1 unit \rightarrow 1 unit time

tion

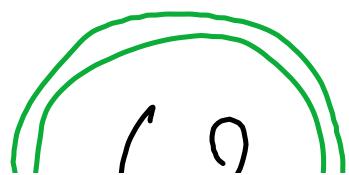
K = 4 lowe

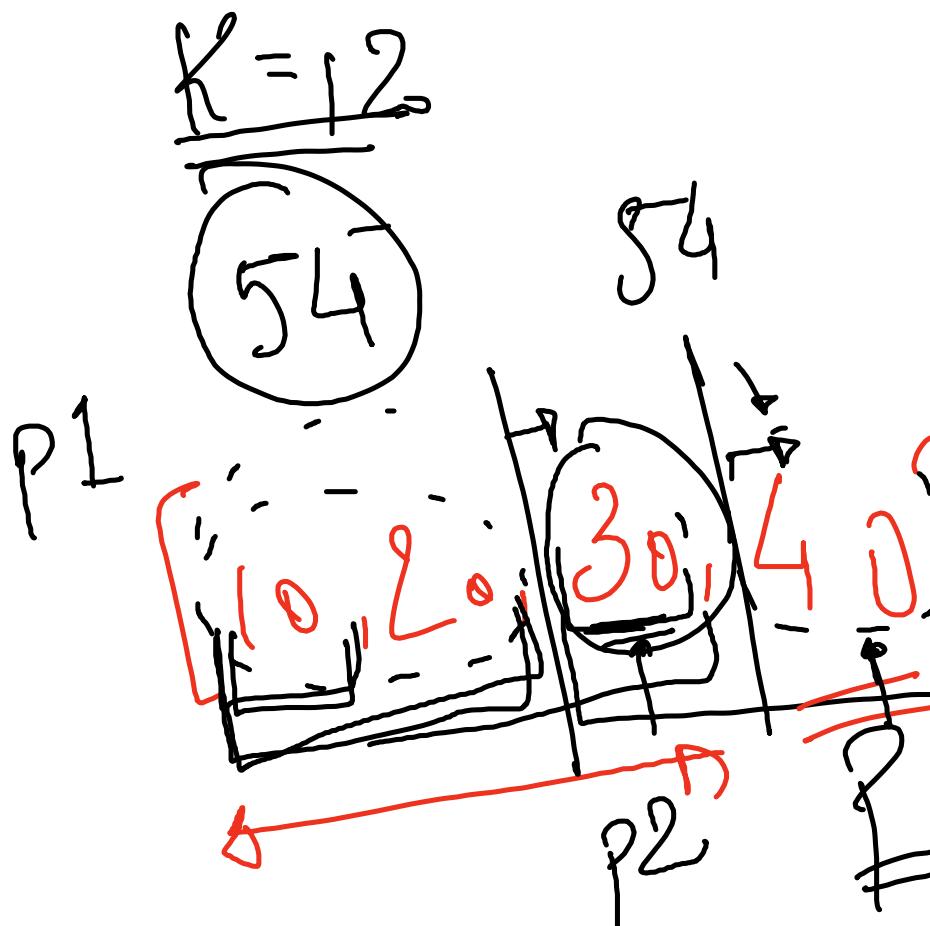
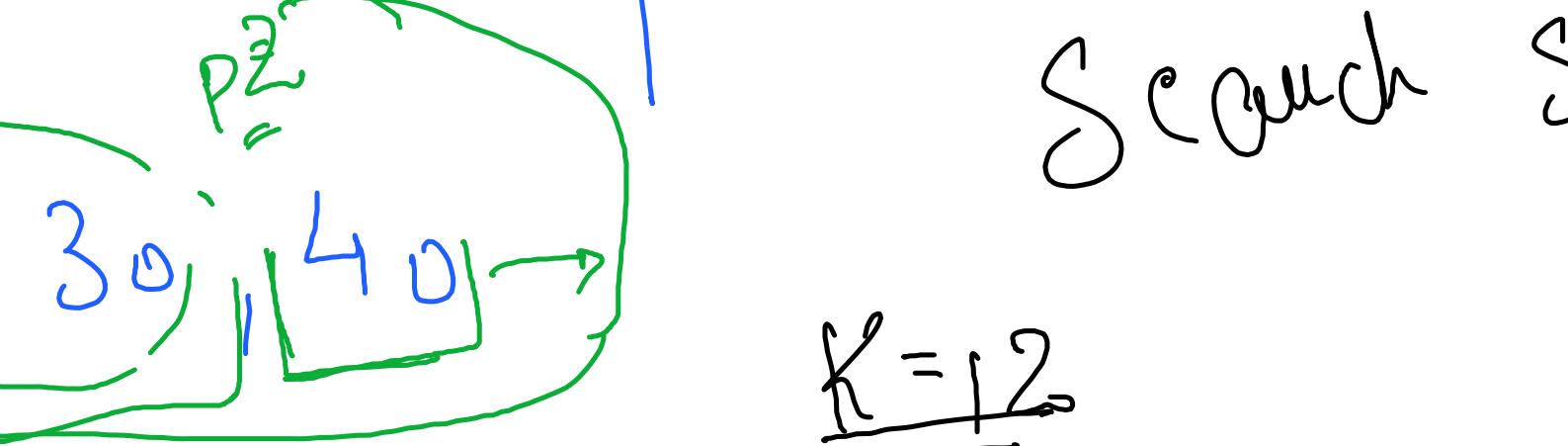
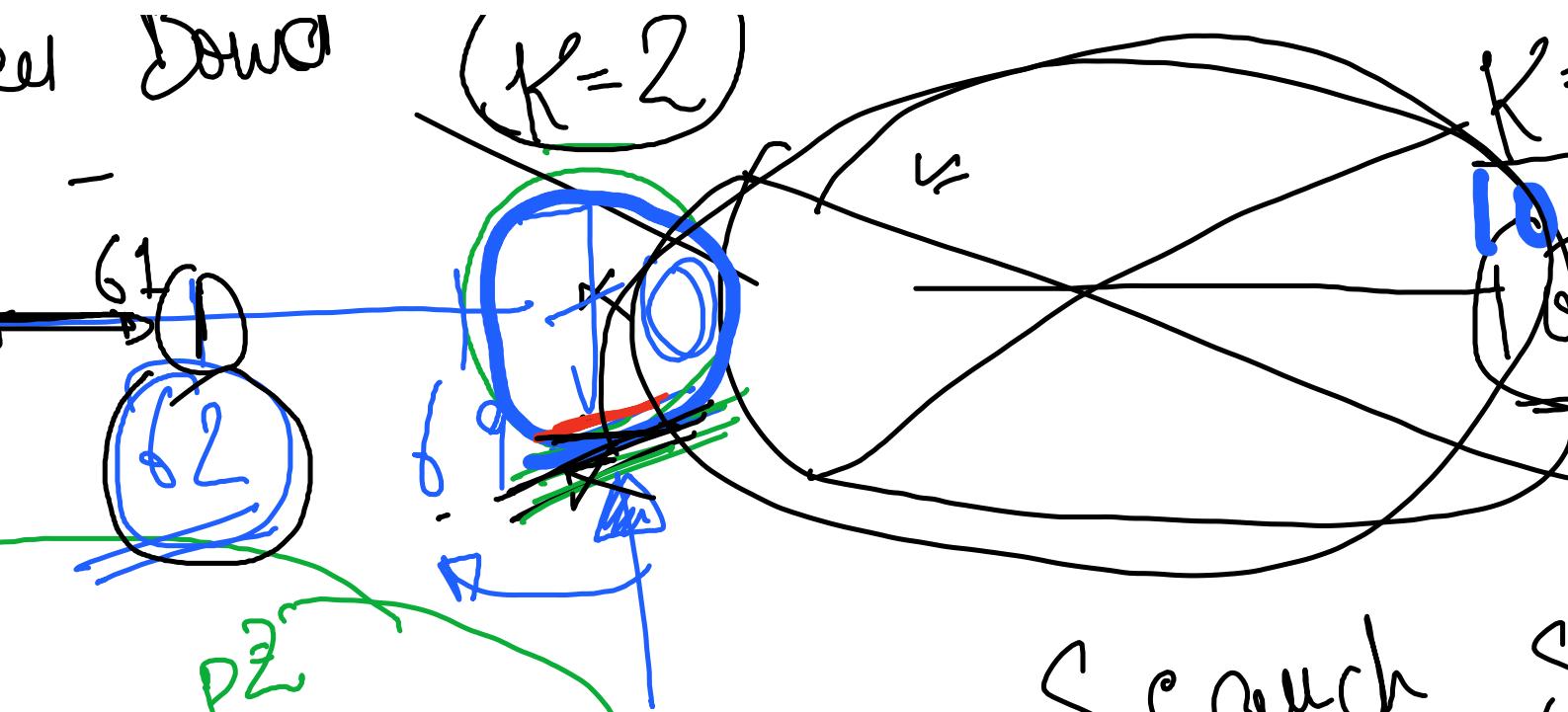


$$P_1 - < 70$$

$$P_2 - < 70$$

$$P_3 - < 70$$







spall



=
= 03



$$P = \cancel{1} + \cancel{1} \rightarrow \cancel{P}$$

$$pt = \cancel{3} \cancel{0} \cancel{6} \cancel{0} \cancel{9} \downarrow$$

