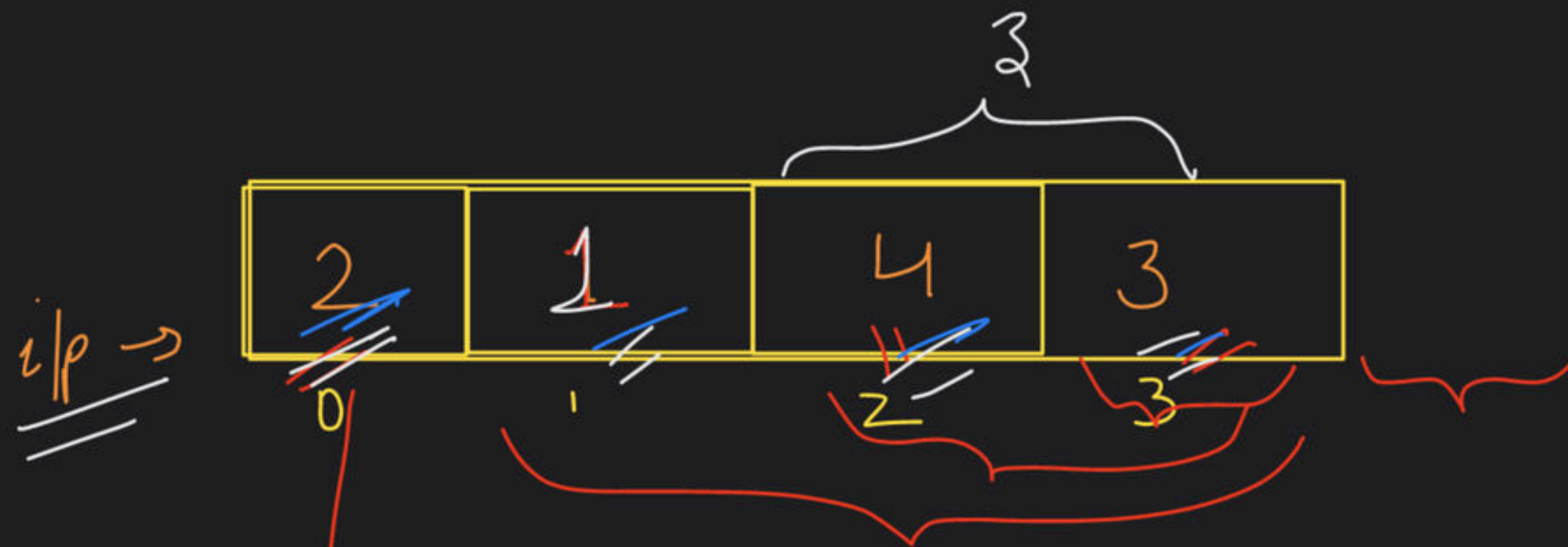




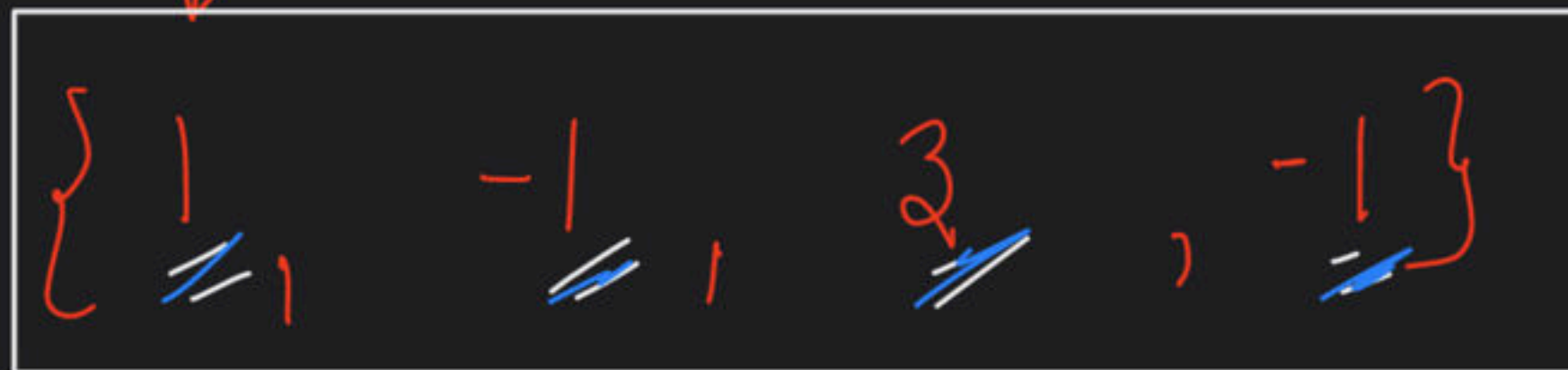
Stack Class - 4

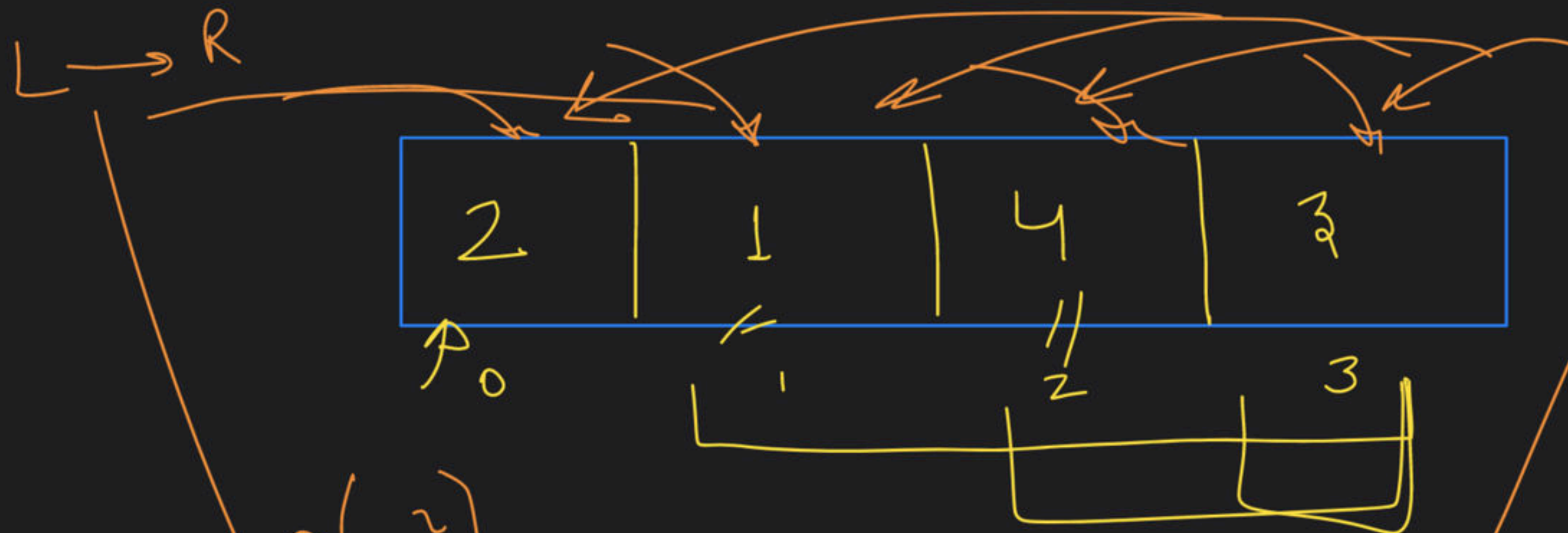
Special class

→ Next smaller element



o/p





Brute force

2 loops

$$(n-1) + (n-2) + (n-3) + \dots + 1$$

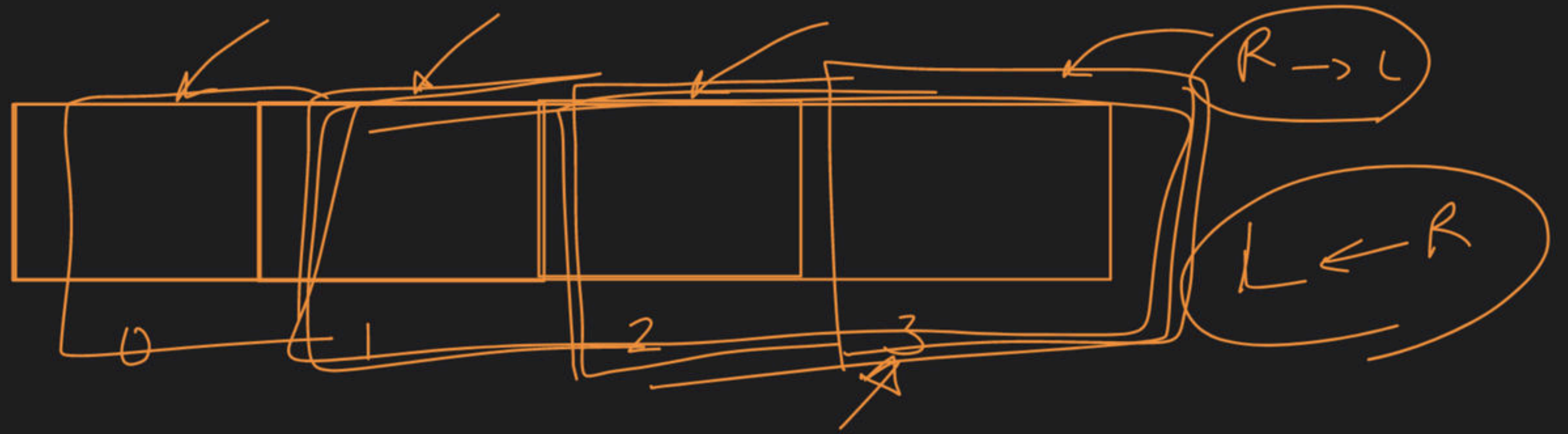


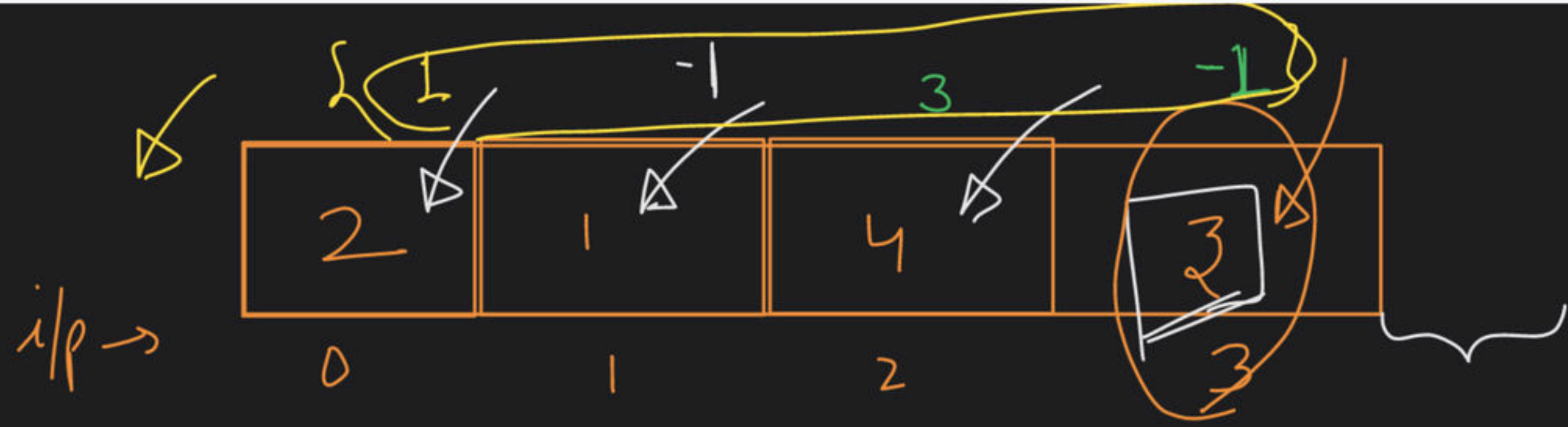
~~$O(n^2)$~~ → T.C =

```

for (i = 0 → < n)
{
  for (j = i + 1 → < n)
  {
    // ...
  }
}

```

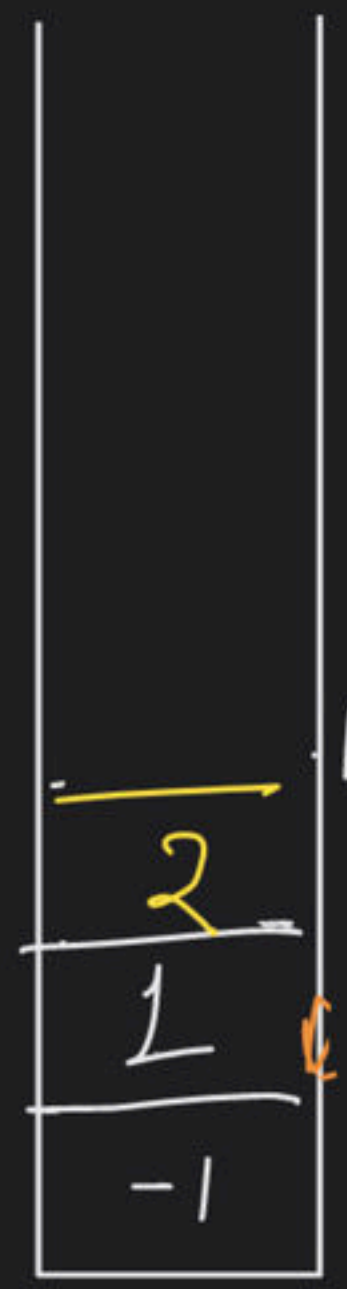


nwm = 2

1 < 2 → true

↓

save ans



nwm = 1

3 < 4 → true

-1 < 3 → true

4 < 1 → false

3 < 1 → false

-1 < 1 → true

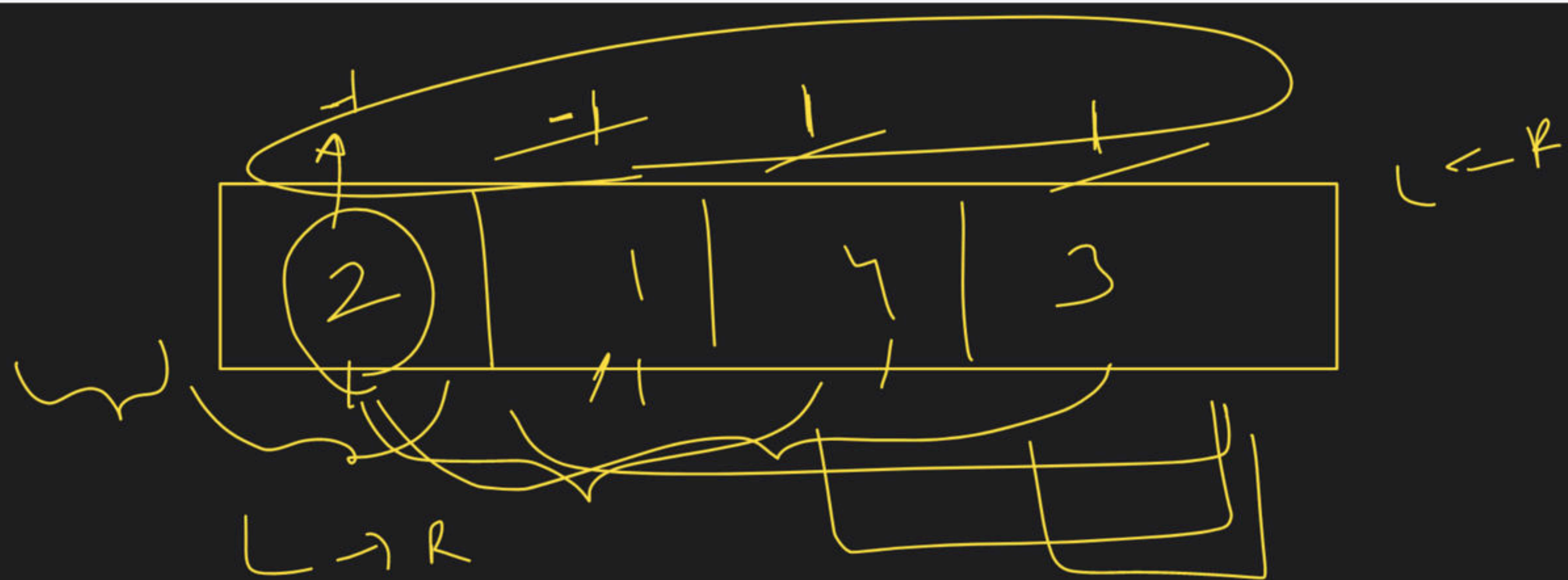
s.pop()

↑

false

save ans

include 3 in stack



power smaller γ element

Re-Use

→ Largest ^{Rectangular} Area in a Histogram

width $2n-p-1$



prev
smaller
element

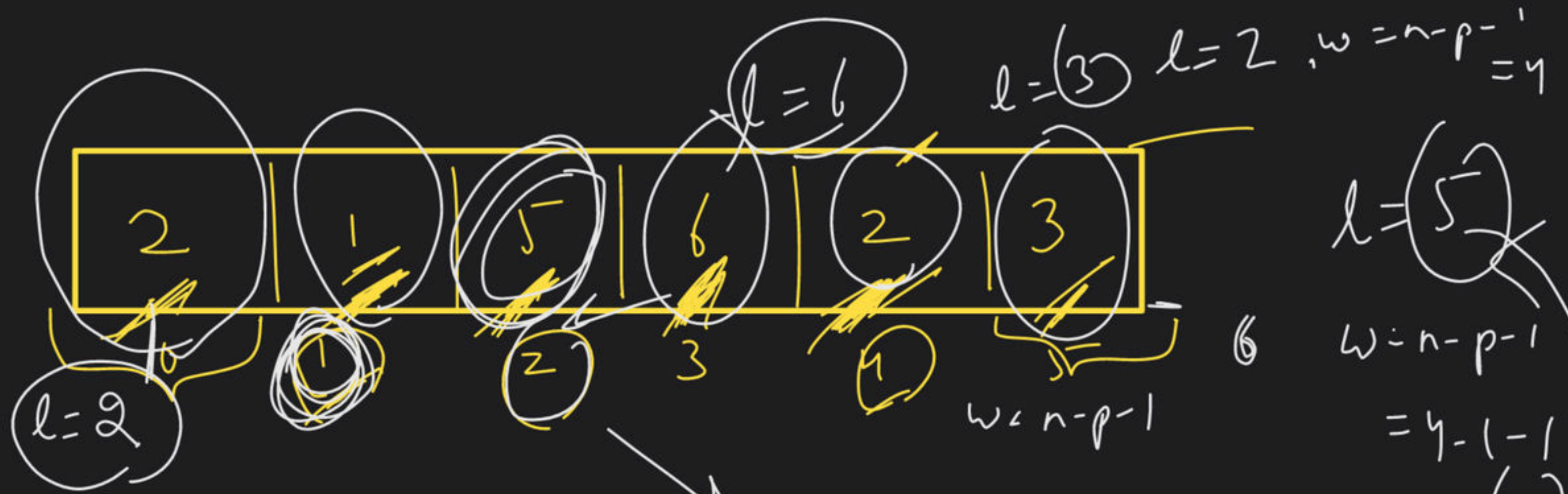
next
smaller
index

Brute
force

extend tabli
hoga, jab
adjacent bar
height \geq ^{current} height

- $A_1 = 2$
- $A_2 = 6$
- $A_3 = 10$
- $A_4 = 6$
- $A_5 = 8$
- $A_6 = 3$

max \rightarrow 10 \rightarrow ans



prev
smaller
element \rightarrow index



next
smaller
element \rightarrow index



$$\begin{aligned}
 w &= n - p - 1 \\
 &= 1 - (-1) - 1 \\
 &= 1 + 1 - 1 = 1
 \end{aligned}$$

$$\begin{aligned}
 h &= p - 1 \\
 &= 6 - (-1) - 1 \\
 &= 6 + 1 - 1 = 6
 \end{aligned}$$

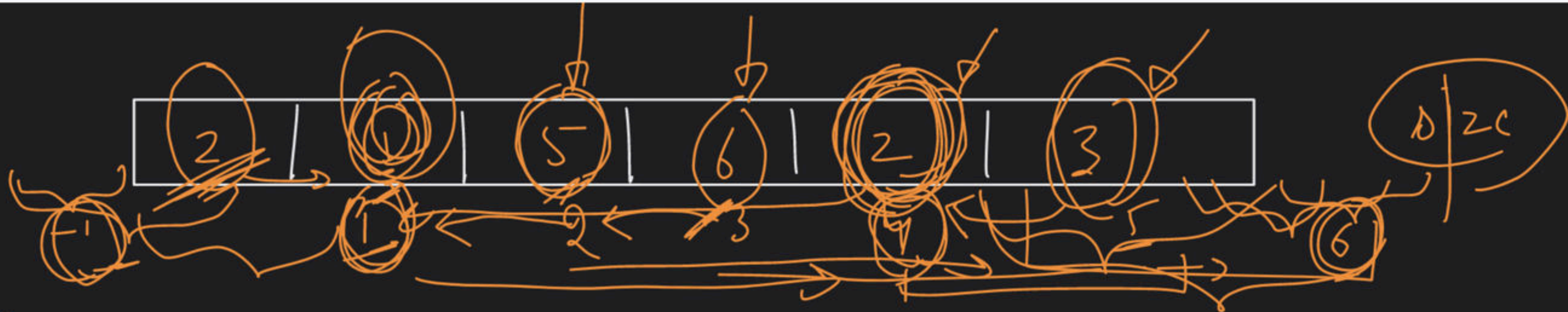
$$l=3, l=2, w=n-p-1=4$$

$$\begin{aligned}
 l &= 5 \\
 w &= n - p - 1 \\
 &= 4 - 1 - 1 \\
 &= 2
 \end{aligned}$$

$$A = 10$$

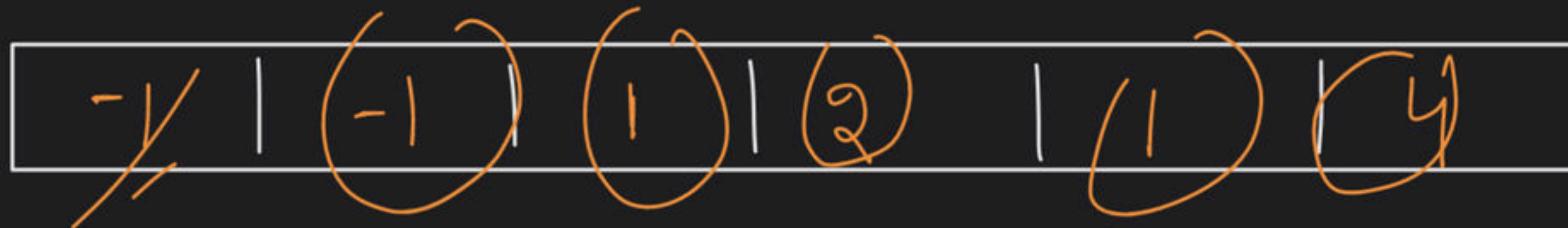
$$\begin{aligned}
 l &= 6 \\
 w &= n - p - 1 \\
 &= 4 - 2 - 1 \\
 &= 1
 \end{aligned}$$

input



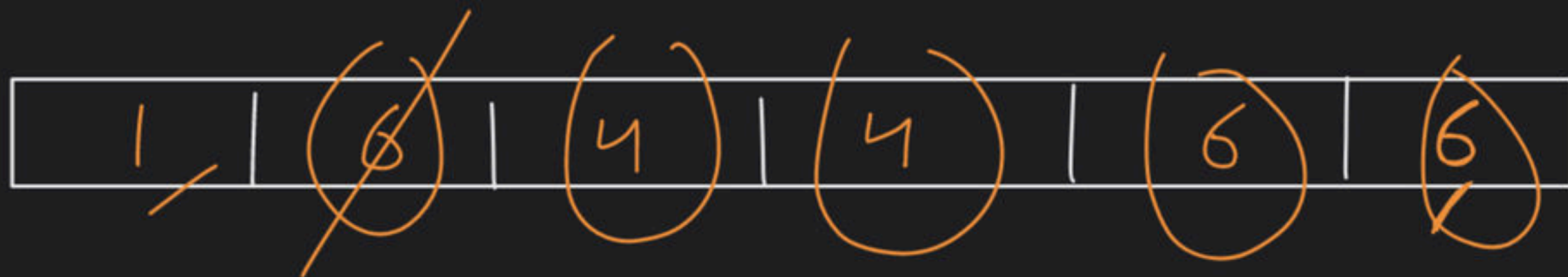
index

~~prev smaller~~

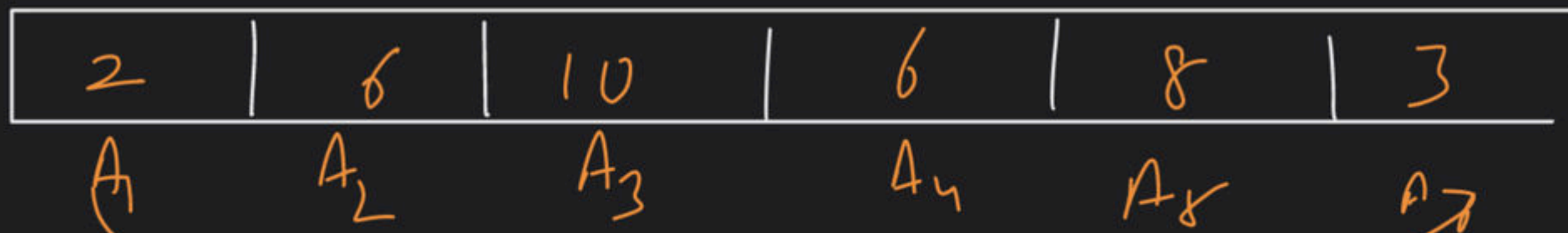


index

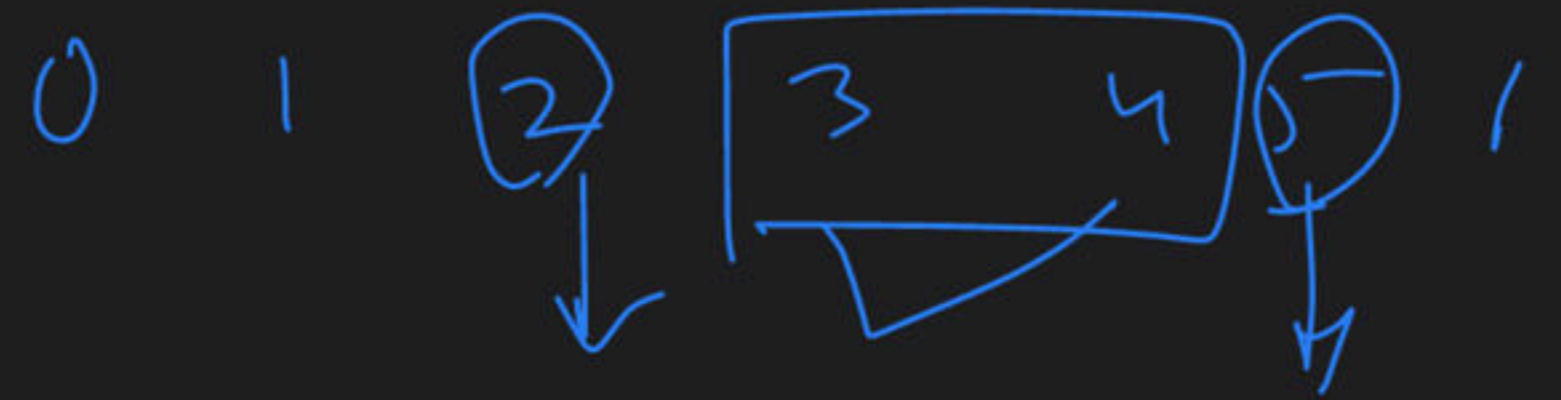
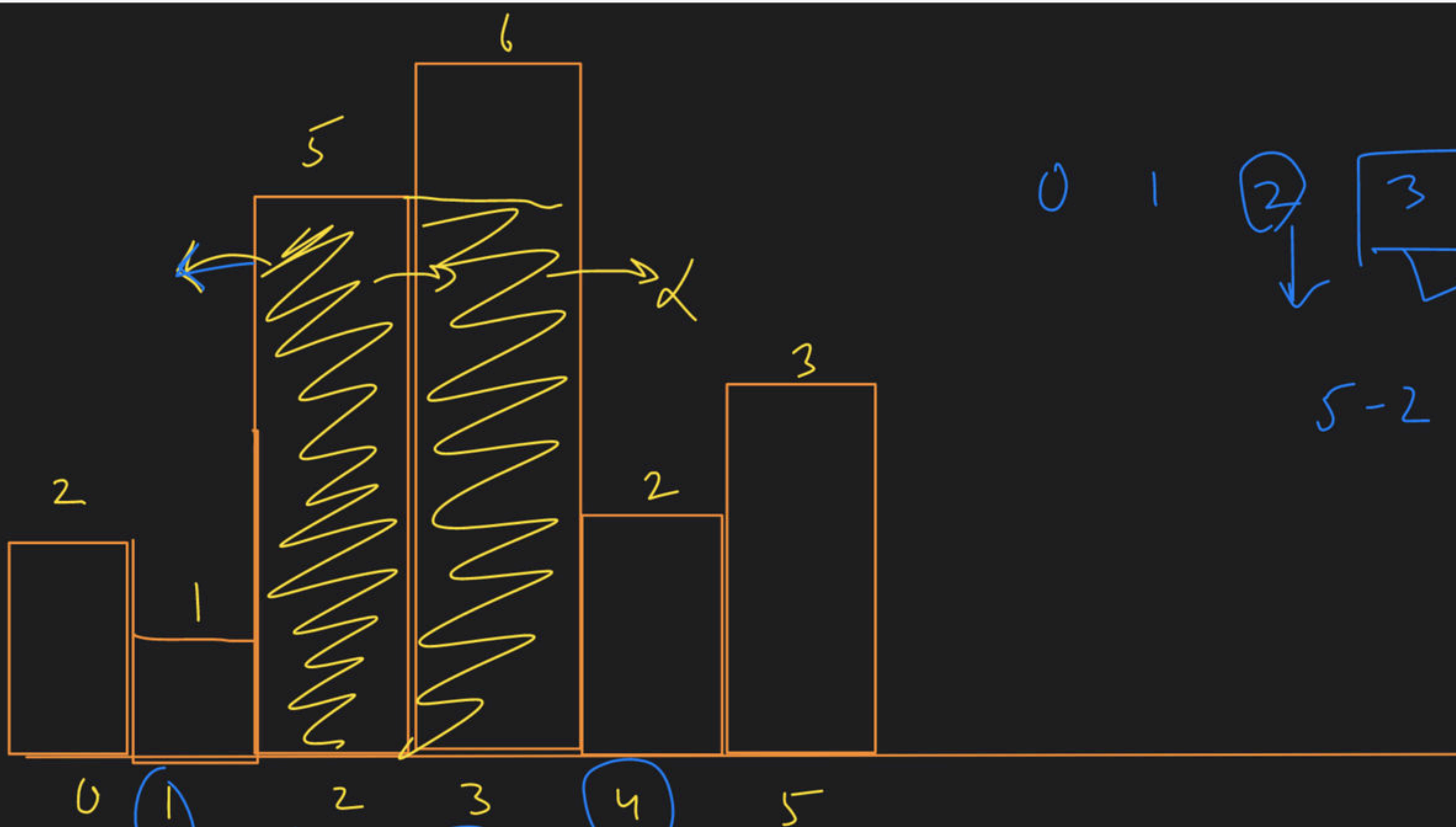
~~next smaller~~



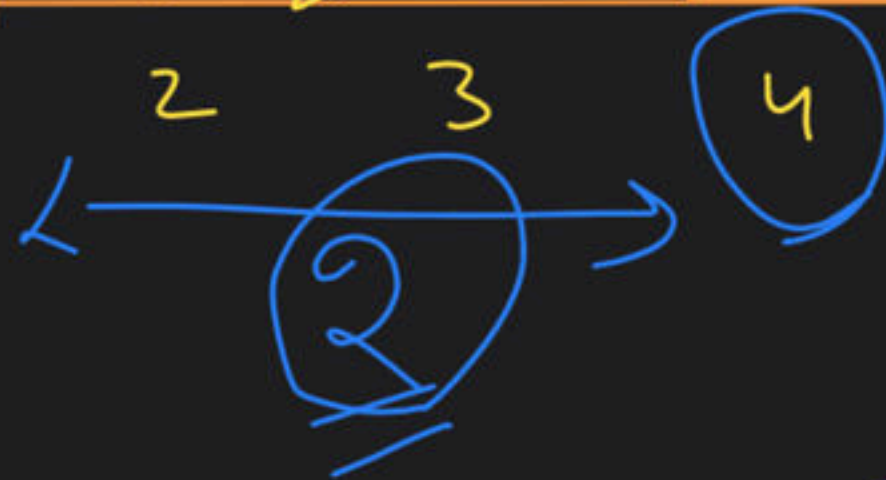
Area



max = 10



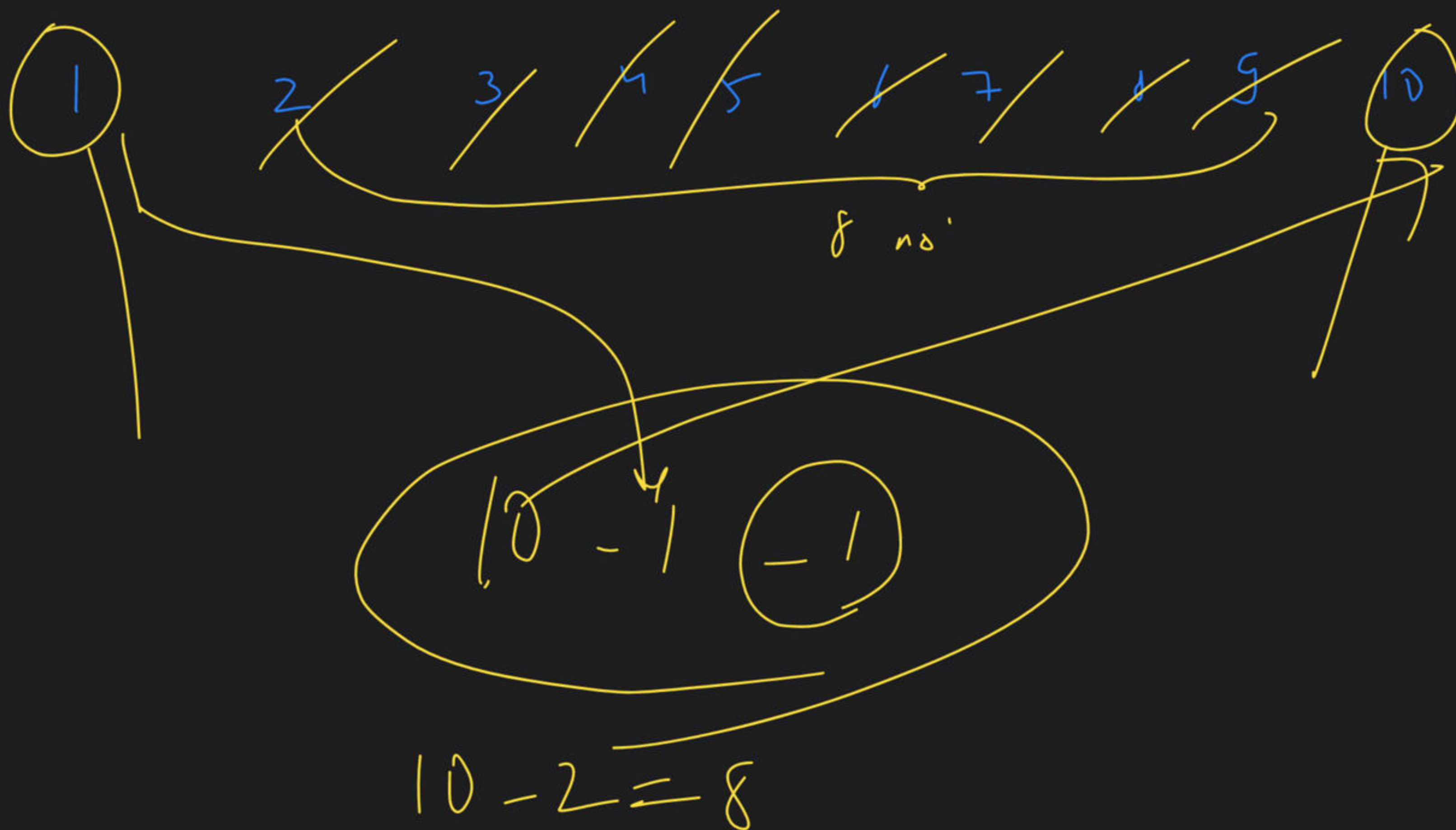
$$5 - 2 = (3) - 1 = (2)$$

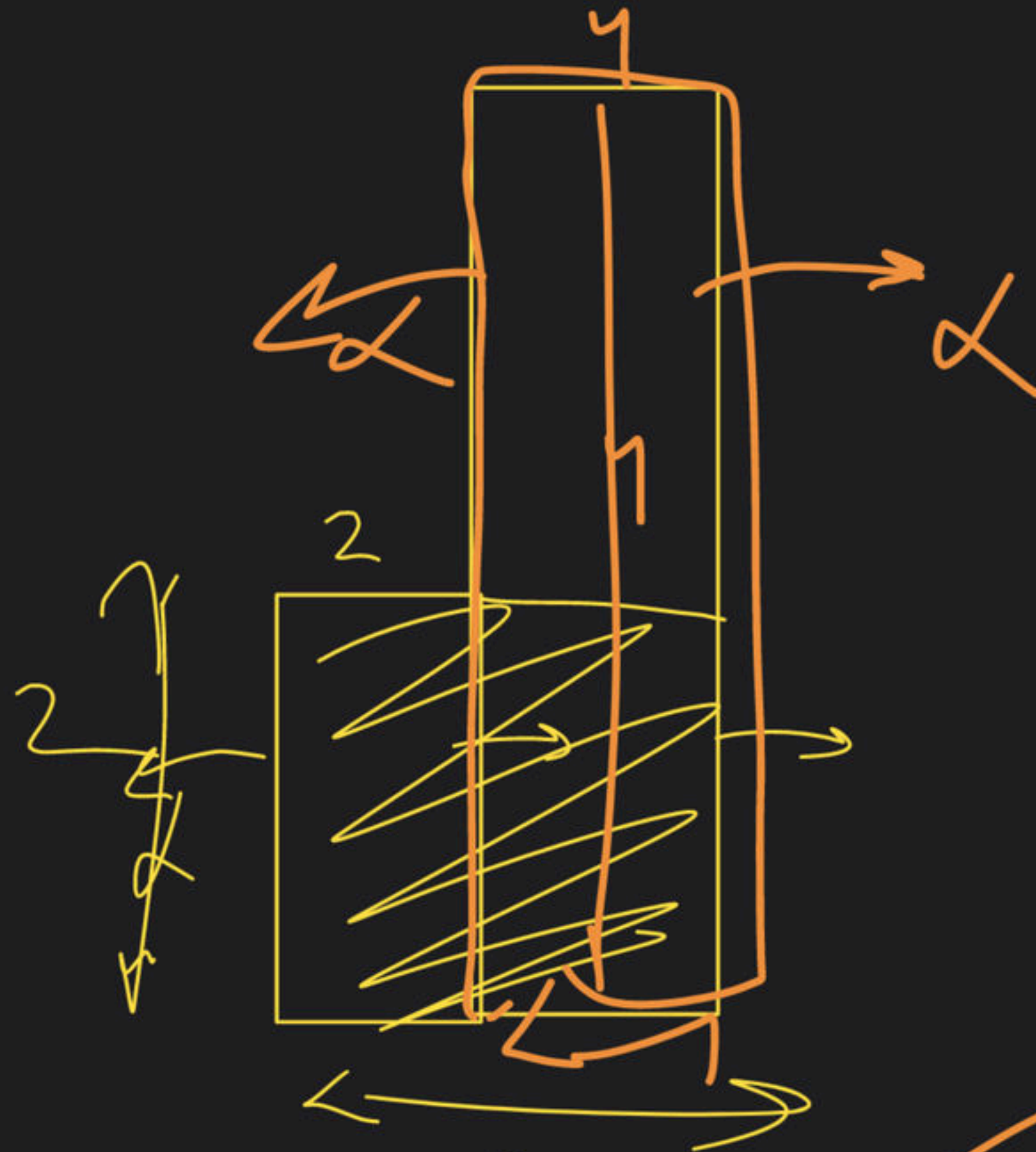


$$n = 4$$

$$p = 1$$

$$w = n - p - 1$$





$$A_1 = 2 \times 2 = 4$$

$$A_2 = 1 \times 4$$

$$= 4$$

{ 1 -1 3 -1 }

































