Space Span →

Indices (red): 0 1 2 3 4 5 6 7 8

Array values (circled/blue): 2 5 9 3 1 12 6 8 7

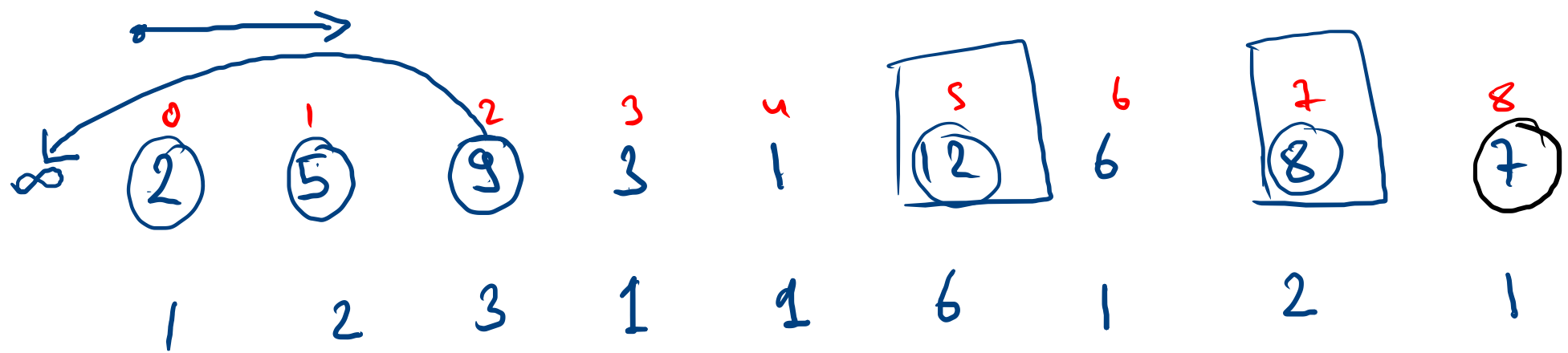Span values (blue): 1 2 3 1 1 6 1 2 1

answer

← here greah on left distance

8

arr[i]

for the array [2 5 9 3 1 12 6 8 7]
span for 2 is 1
span for 5 is 2
span for 9 is 3
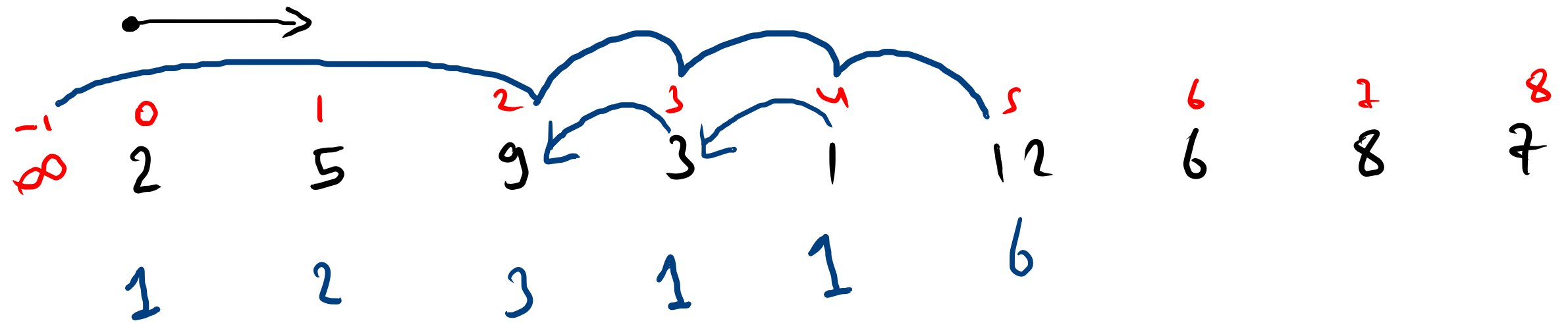span for 3 is 1
span for 1 is 1
span for 12 is 6
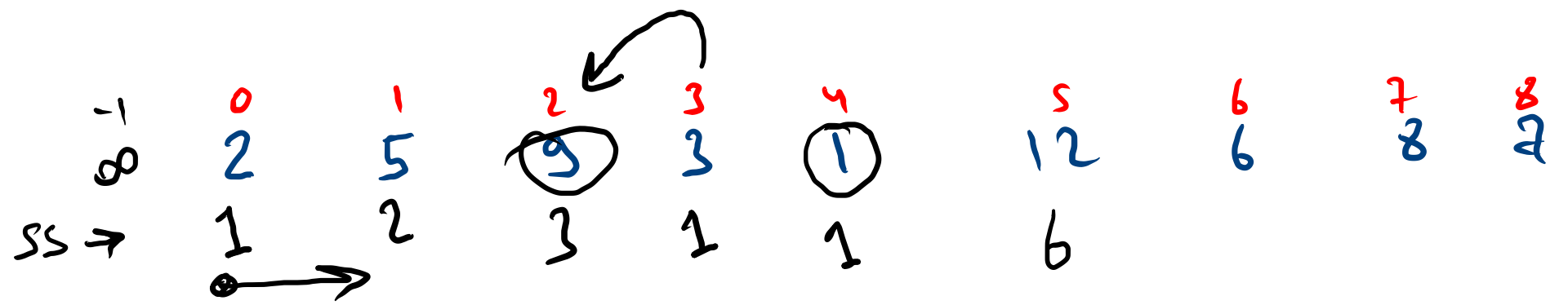span for 6 is 1
span for 8 is 2
span for 7 is 1

-1	0	1	2	3	4	5	6	7	8
8	2	5	9	3	1	12	6	8	7

1   2   3   1   1   6

$3 - 2 = 1$

$4 - 3 = 1$

$5 - (-1) = \boxed{6}$

idx

Index annotations:
```
   -1    0   1   2   3   4    5    6    7   8
    ∞    2   5   9   3   1   12    6    8   2
ss→      1   2   3   1   1    6
```



```java
Stack<Integer> st = new Stack<>();
int ss[] = new int[arr.length];

for(int i=0;i<arr.length;i++){

    while(st.size() >0 && arr[st.peek()] <= arr[i])st.pop();

    int greaterI = -1;
    if(st.size() >0){
        greaterI = st.peek();
    }
    ss[i] = i-greaterI;

    st.push(i);
}

return ss;
```

2
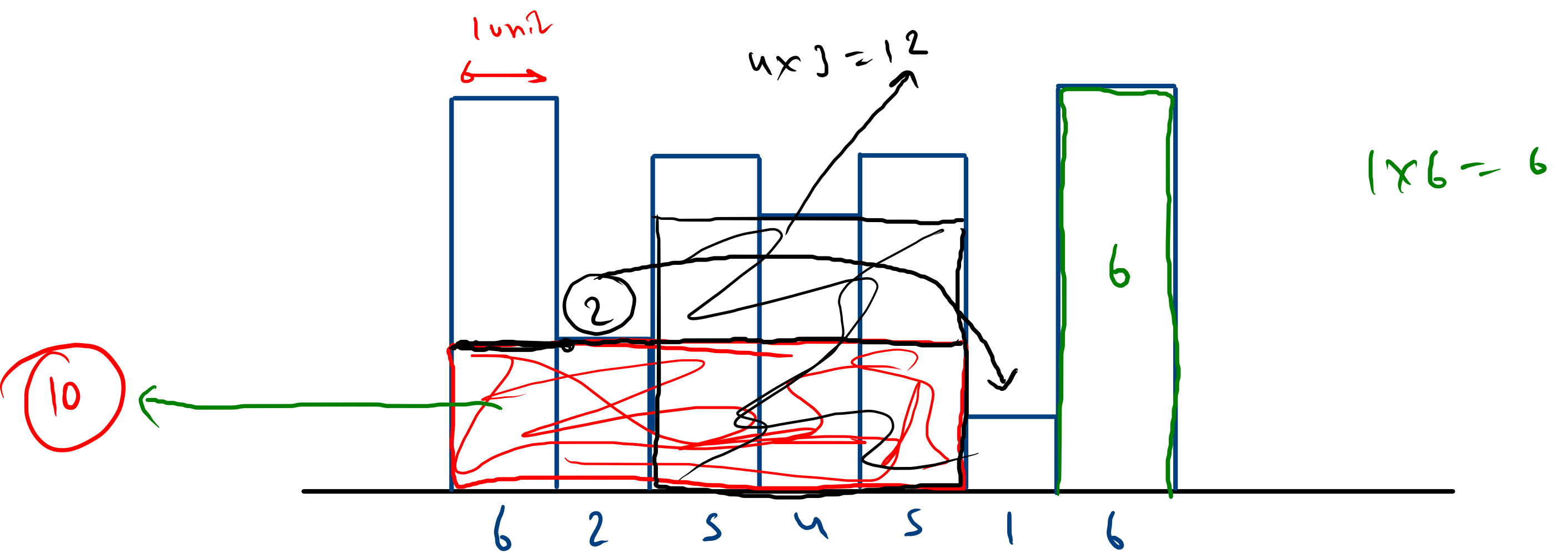
2

9 <= 3

92 = < 2

3-2=1

5

1 unit

$4 \times 3 = 12$

$1 \times 6 = 6$

6

2

10

12

6 2 5 4 5 1 6

$3 \times 4 = 12$

(12)

$RS = 5$
$LS = 1$

$width = RS - LS - 1$
$= S - 1 - 1$

$= \textcircled{3}$

$3 - 1 - 1$

$\textcircled{1}$

$7 - (-1) - 1$

7

5   (12)   5

4

7

$-\infty$

0   0

6   2   S   4   S   1   6

-1   0   1   2   3   4   5   6   7

→ Left small   -1   -1   1   1   3   -1   5

→ Right small   1   5   3   5   5   7   7

width   1   3   7

6 2 5 4 5 1 6

k = 4

greater   9

gindex →

1   6   3   6   5   6   8   8   10   10   17   12

(2) 9   3   8   (1) 7   12   6   14   4   32   0   7   19   8   12   6   (17)
     9   3   8   1   7   12   6   14   4   32   0   7   19   8   12   6
     0   1   2   3   4   5   6   7   8   9   10   11   12   13   14   15   16
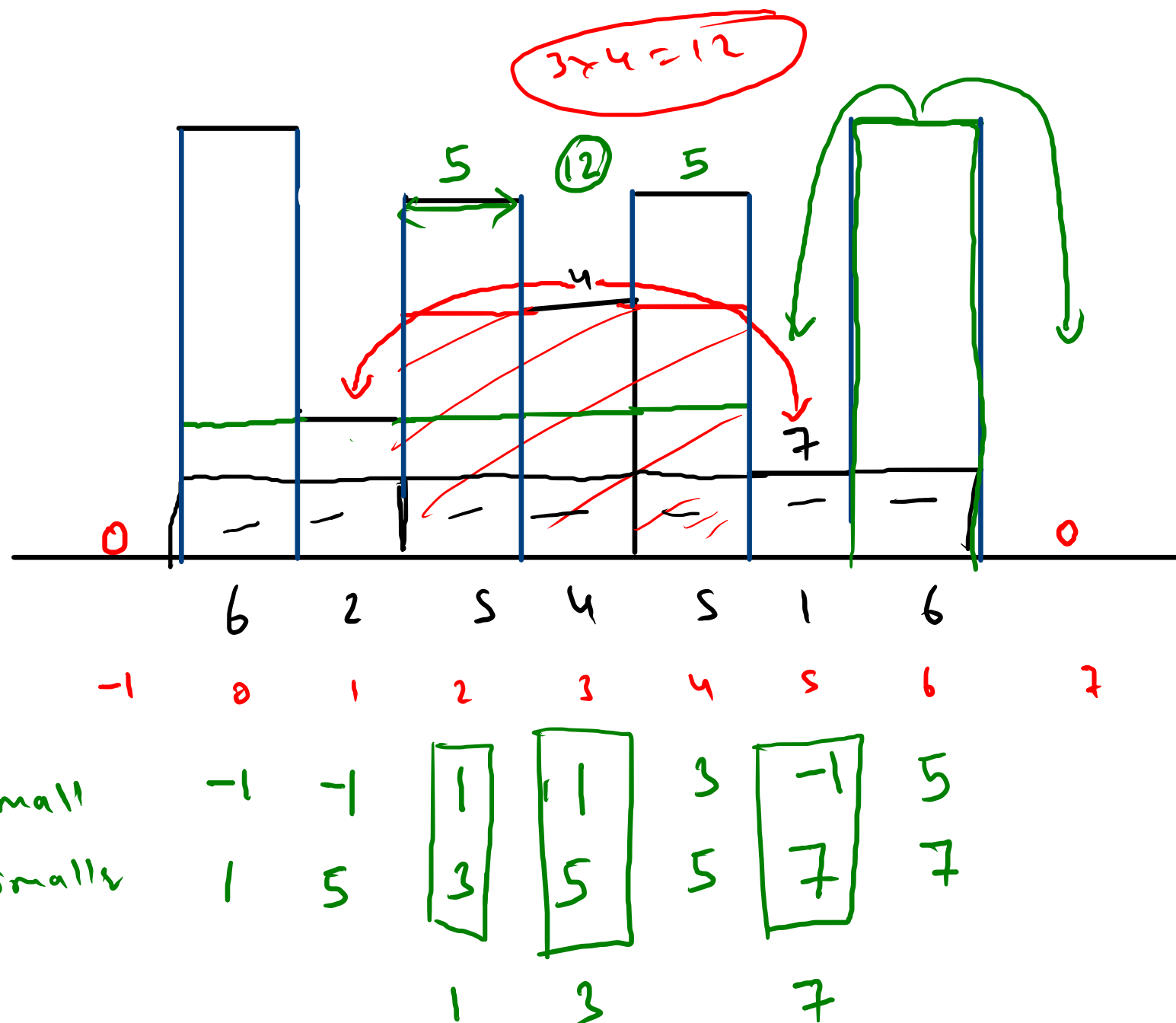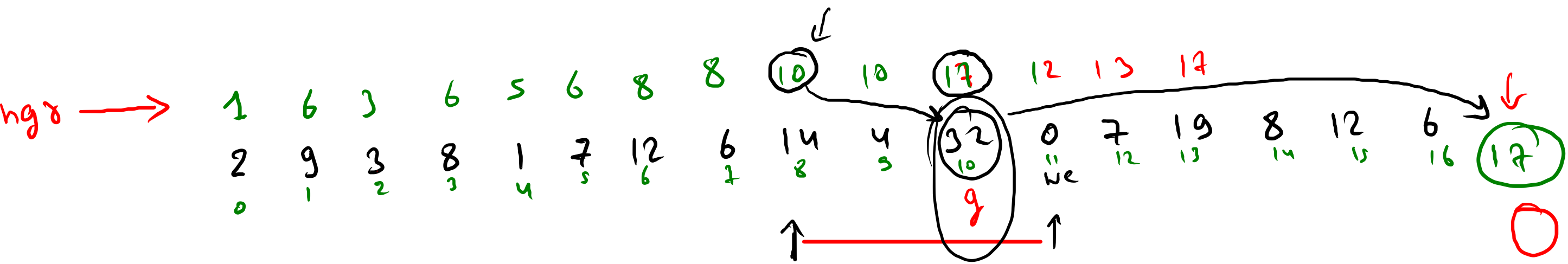
→ maxwind → [9   9   8   12   12   14   14   32   32   32   32   19   19   19]
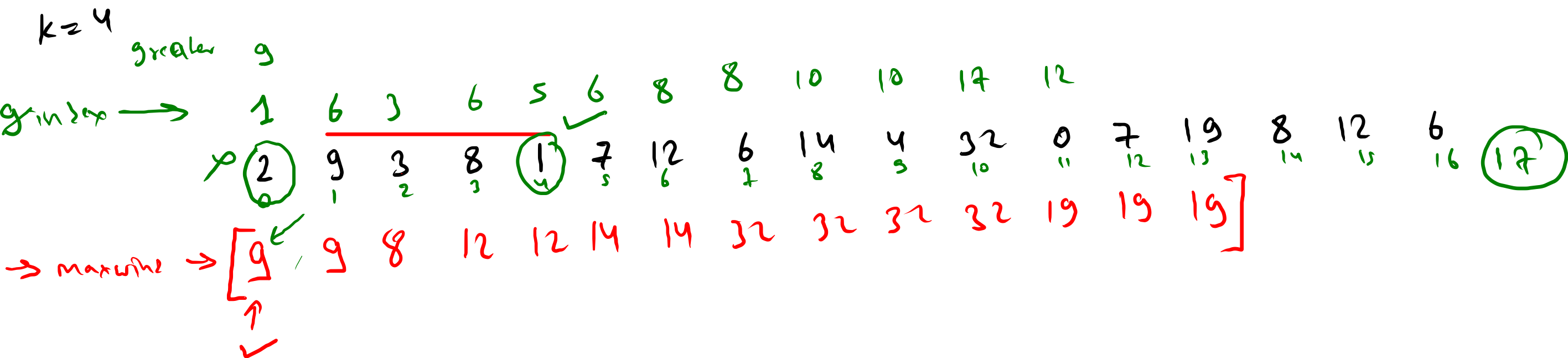
window × k

[2 9 3 8 1 7 12 6 14 4 32 0 7 19 8 12 6] and k = 4, the answer is [9 9
8 12 12 14 14 32 32 32 32 19 19 19]

ngr →

1 6 3 6 5 6 8 8 (10) 10 (17) 12 13 17

2 9 3 8 1 7 12 6 14 4 (32) 0 7 19 8 12 6 (17)
0 1 2 3 4 5 6 7 8 3 10 we 12 13 14 15 16

g

[9 9 8 12 12 14 14 32 32 32 32 19 19 19]

k = 4

ws
we

if (g < ws)

g = ws

g = 17 ≤ 11

while (ngr[g] ≤ we)

g = ngr[g]

infix

$1 + 2 - 3$

$a + b$ infix

$+ ab$ prefix

$ab +$ postfix

$2 + \boxed{6 * 4} / 8 - 3$ ~~(a*b)~~

$2 + \boxed{24 \big/ 8} \quad 3$ (circled: 24 / 8)

$2 + \quad 3 \quad - 3$

$5 \quad - 3$

$\boxed{2} \leftarrow$

---

2 + 6 * 4 / 8 - 3

$2 + \boxed{24 \quad / \quad 8} \; - \; 3$

$2 + \quad 3 \quad - 3$

$5 \qquad - 3$

$\boxed{2} \Leftarrow$

$2 + 2 * 2$

$2 + \quad 4$

6

priority

$+, - \;\rightarrow\; 1$

$*, / \;\rightarrow\; 2$

same priority
left priority

$\rightarrow$ **2 + 6 * 4 / 8 - 3**

$\rightarrow$ Solve $\rightarrow$ St $\geq$ Current

$-$ $\rightarrow$ Left

Pospones

⑤ $\leftarrow$

$\underset{a + b}{\overset{c}{\boxed{a + b}}}$

$2 + 6 \quad 4 / 8 - 3$

$\bigstar$ | $2 + 6$

$\boxed{2 + 3} - 3$

$5 \quad - 3$

Priority

$+ - \rightarrow 1$

$* / \rightarrow 2$
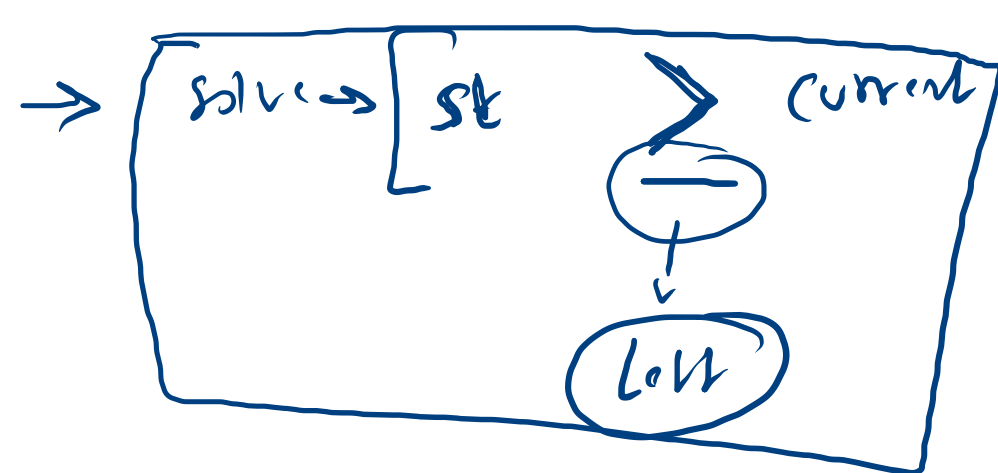
same prior

Left solve

a	op	b

6 $*$ 4

24

24 / 8

2 + 3

5 - 3

2

$$2 + 6 * 4 / 8 - 3$$

②

Operator

number

2

$+ \geq *$

$* \geq /$

$+ \geq /$

$/ \geq -$

$+ \geq -$

priority

$+ \; - \;\to\; 1$

$* \; / \;\to\; 2$
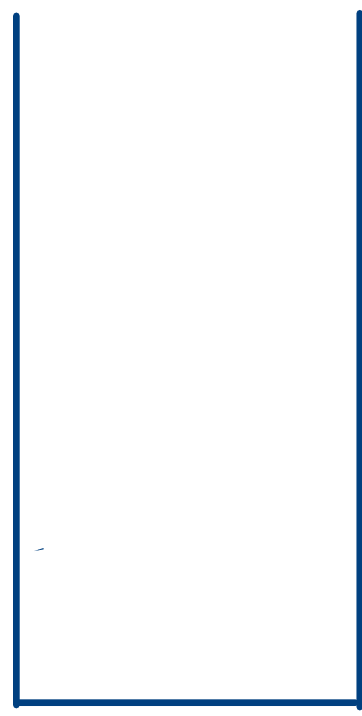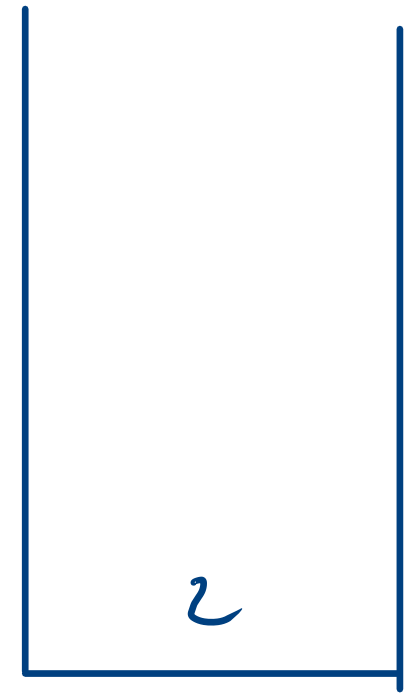
same prior
left solve

$(8-3)$

$2 + 6 * 4 / (8 - 3)$

$2 + 6 * 4 / (8-3)$

$2 + 24 / (8-3)$

$2 + 24 / 5$

$2 + \quad 4$

6

6   —

Sol~ $\rightarrow$ ($\geq$ —

$+\!- \rightarrow 1$

$*/ \rightarrow 2$

op

6
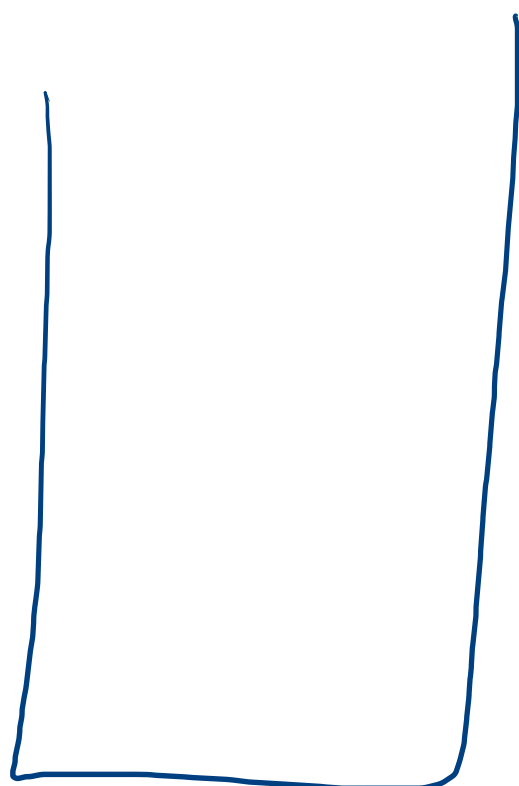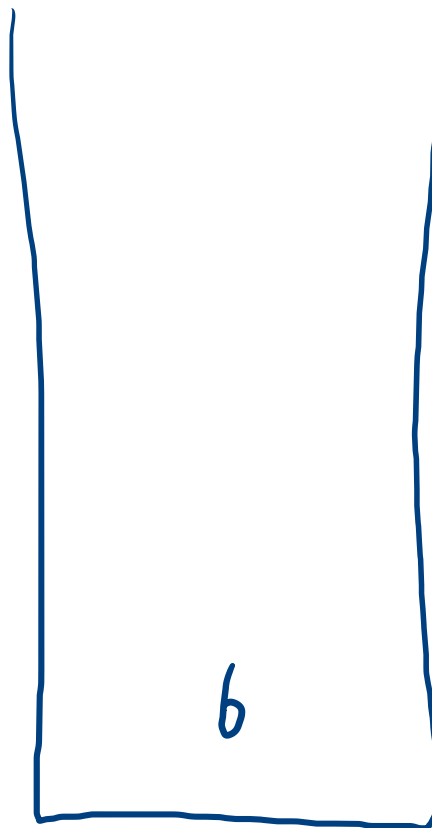
number

TODO ⌊ infix Conversion ⌋

infix → a + b

pr   + a b

pon   a b +

2 + 6 * 4 / 8 - 3

2 + ❋ 6 4   / 8 - 3

2 +   / ❋ 6 4 8   - 3

+ 2 / ❋ 6 4 8   - 3

Prefix equivalent

- + 2 / ❋ 6 4 8 3

infix → Prefix
     → Postfix
     → Solve

2 + 6 * 4 / 8 - 3

2 + 6 4 ❋ / 8 - 3

2 + 6 4 ❋ 8 / - 3

2 6 4 ❋ 8 / + - 3

2 6 4 ❋ 8 / + 3 -   Postfix equivalent