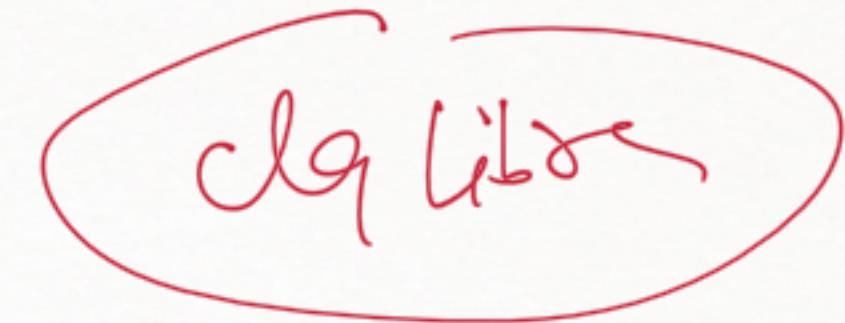


You

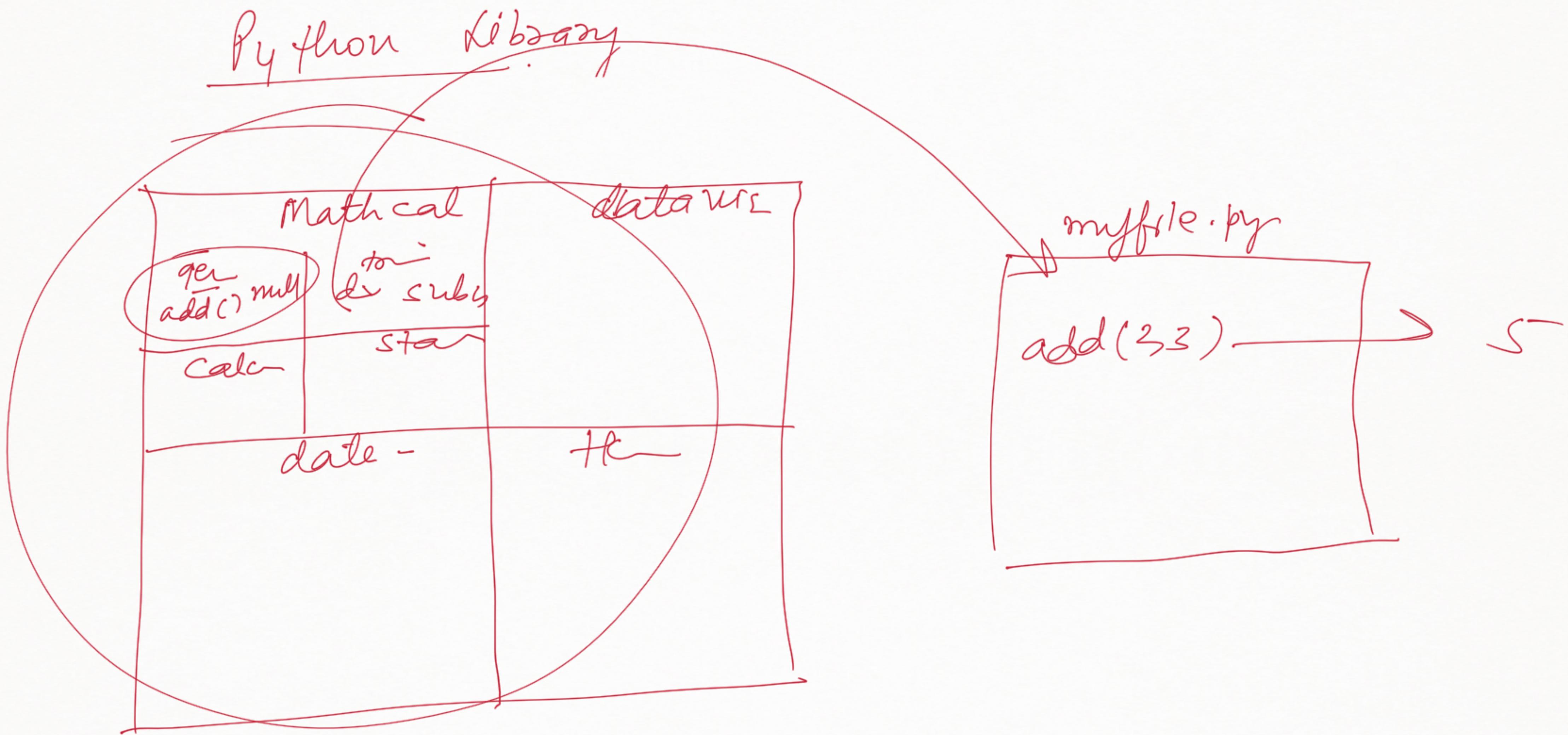


→ Extra cost

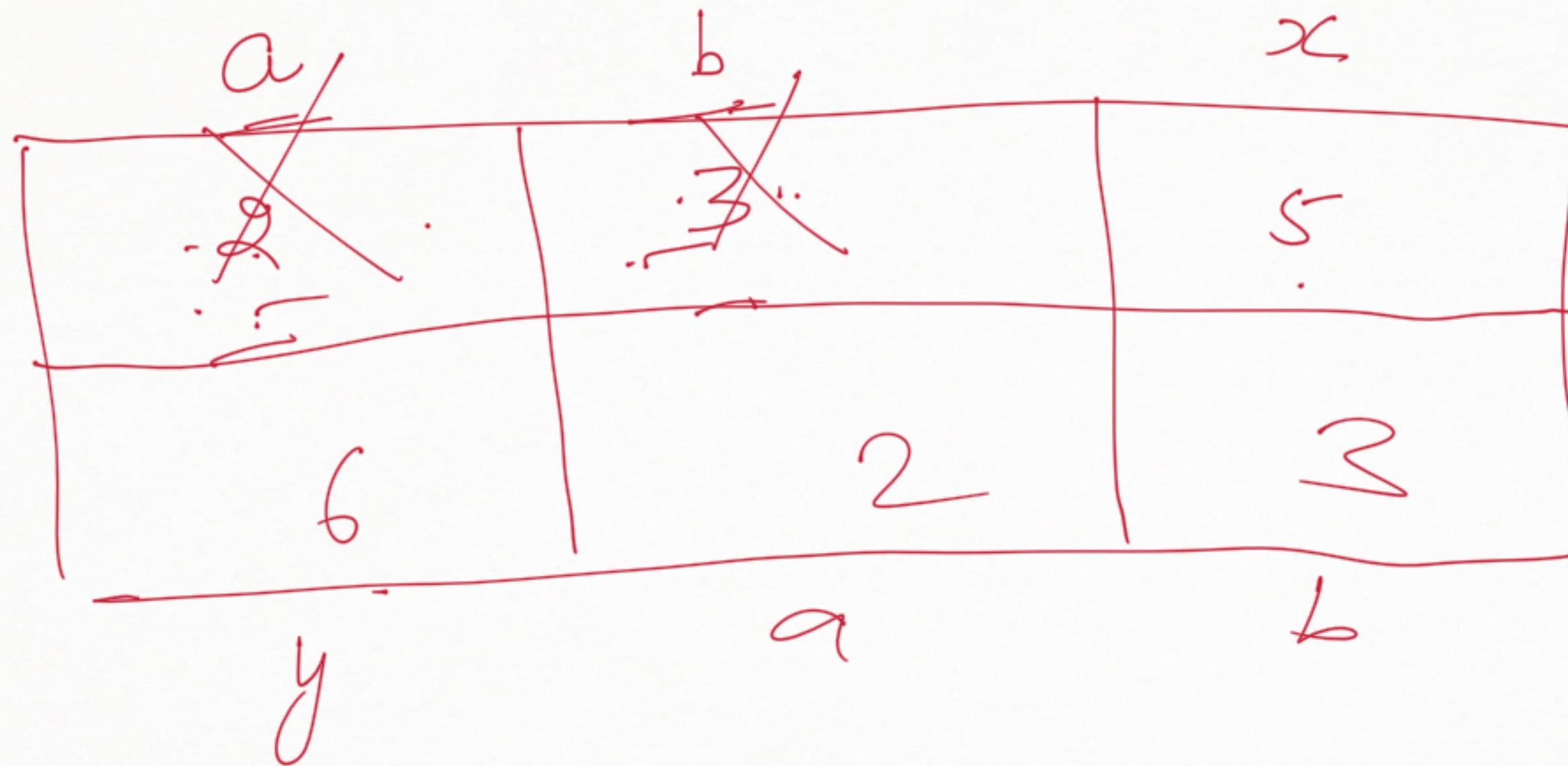
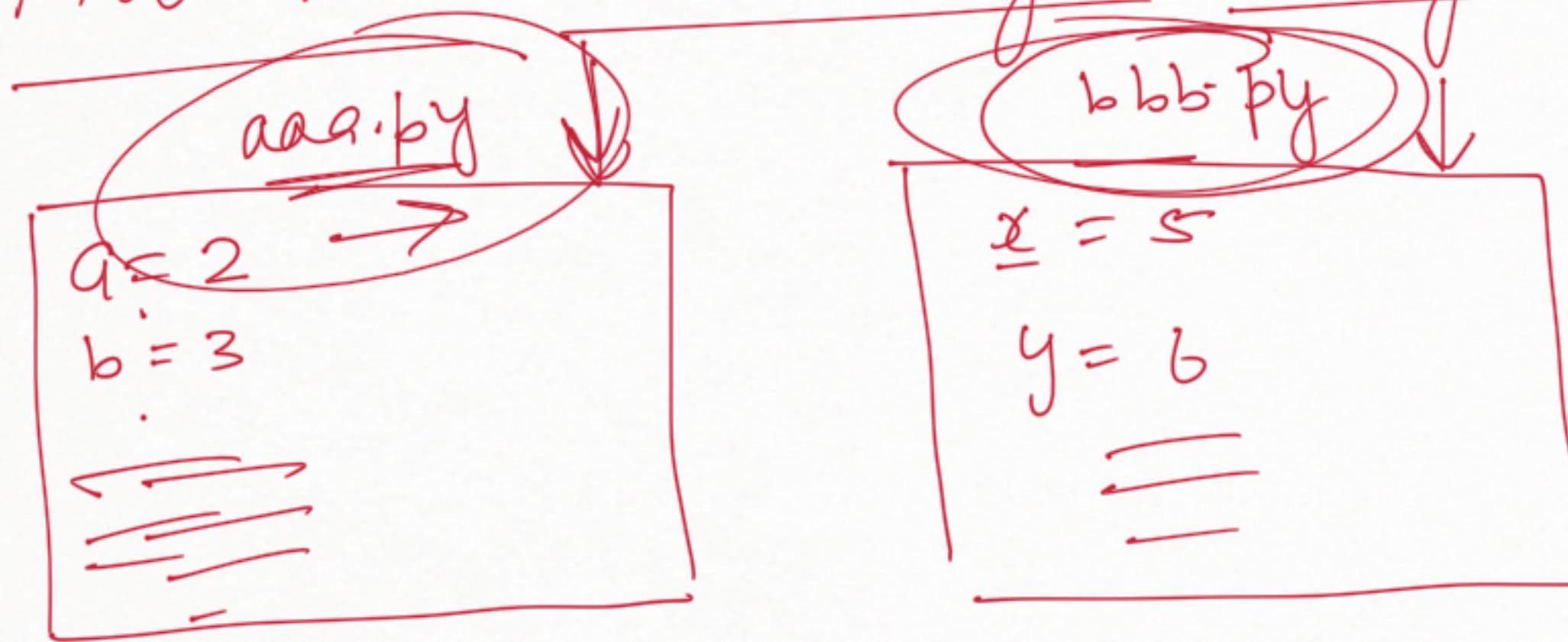
→ No extra cost



→ Extra time → No extraction



## Automatic memory management & Garbage collector:



aaa.py ↴

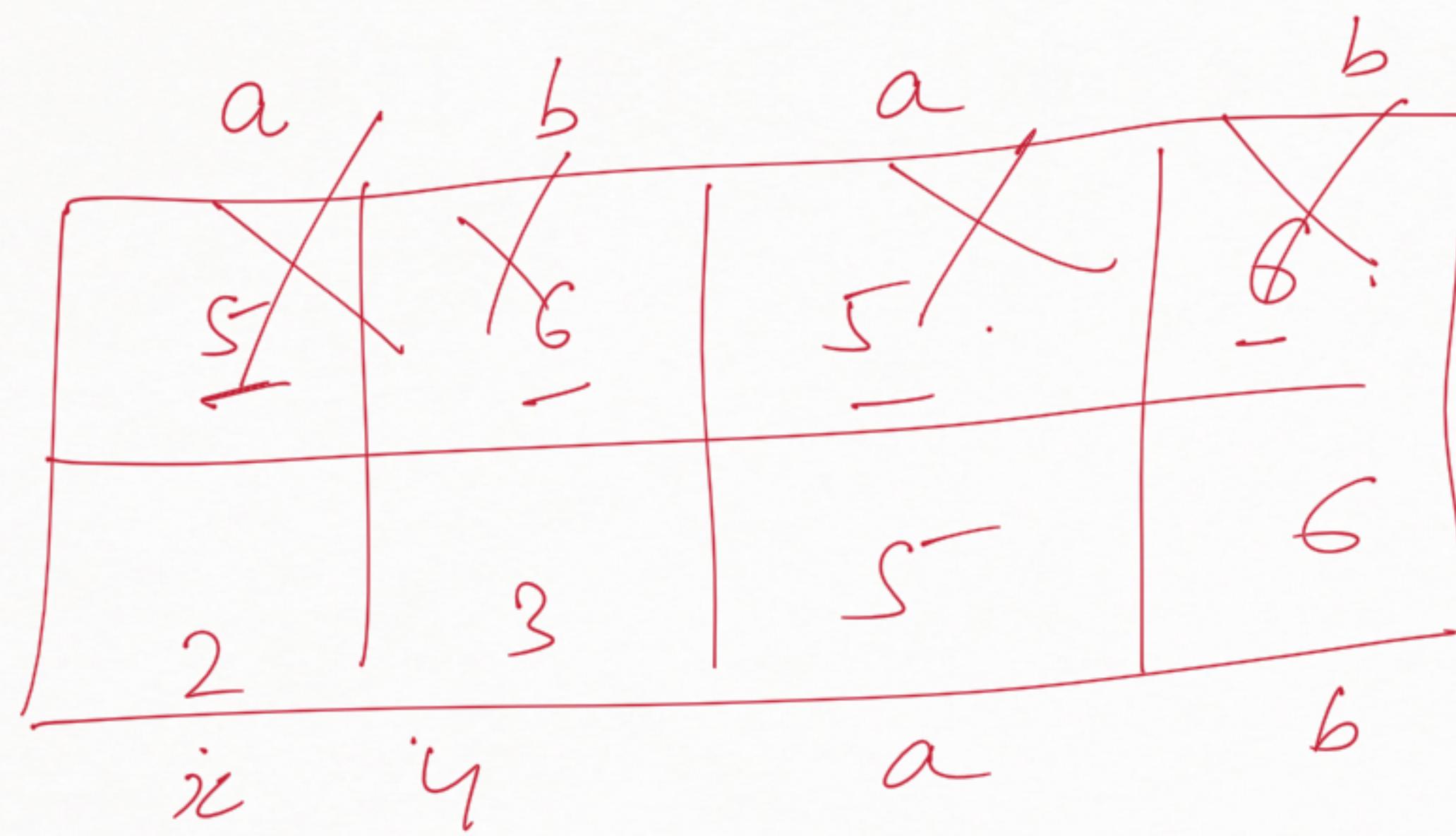
$$a = 5$$

$$b = 6$$

bbb.py ↴

$$x = 2$$

$$y = 3$$

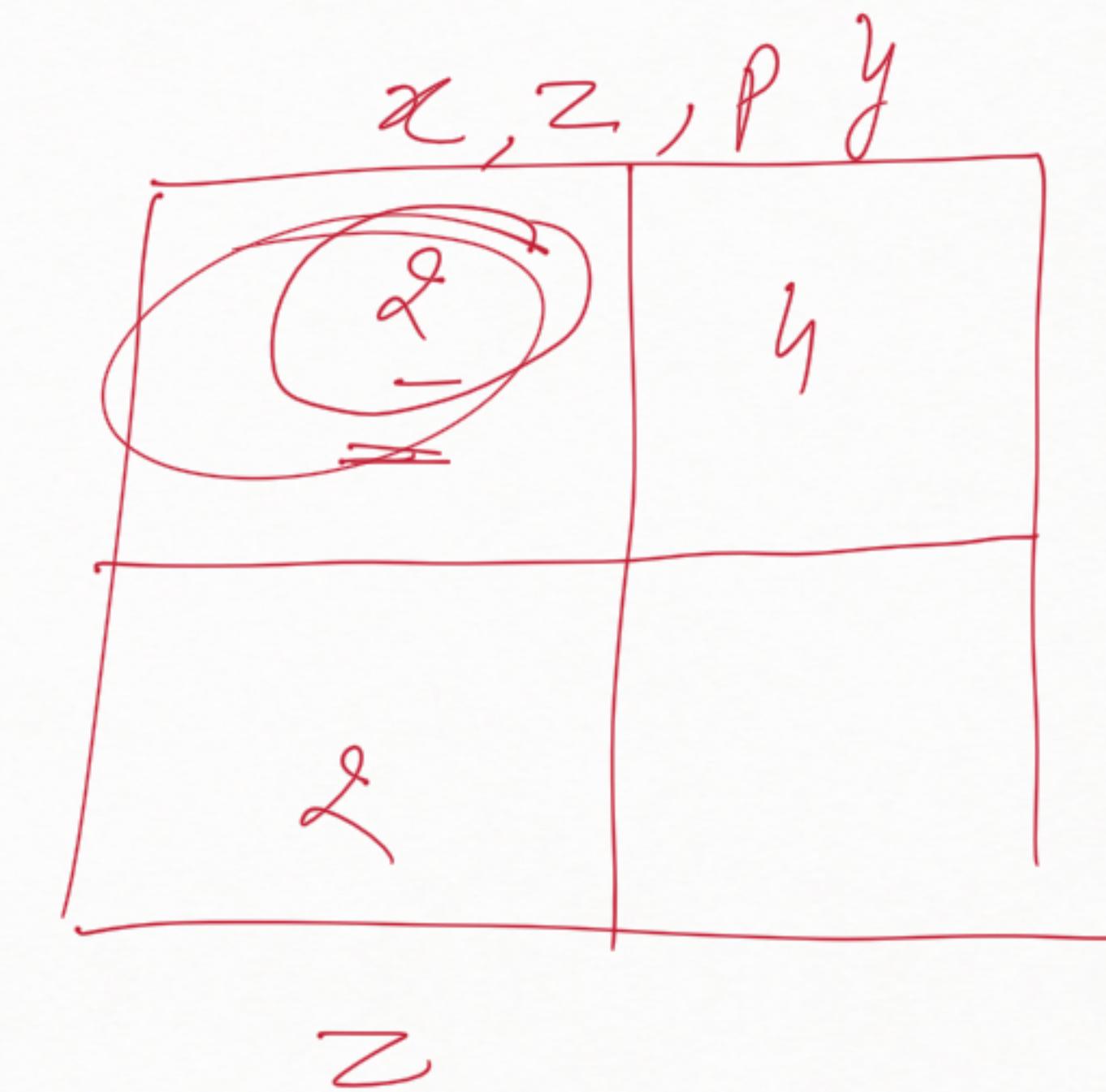


$$x = 2$$

$$y = 4$$

$$z = 2$$

$$p = 2$$



$\rightarrow a = \underline{2}$

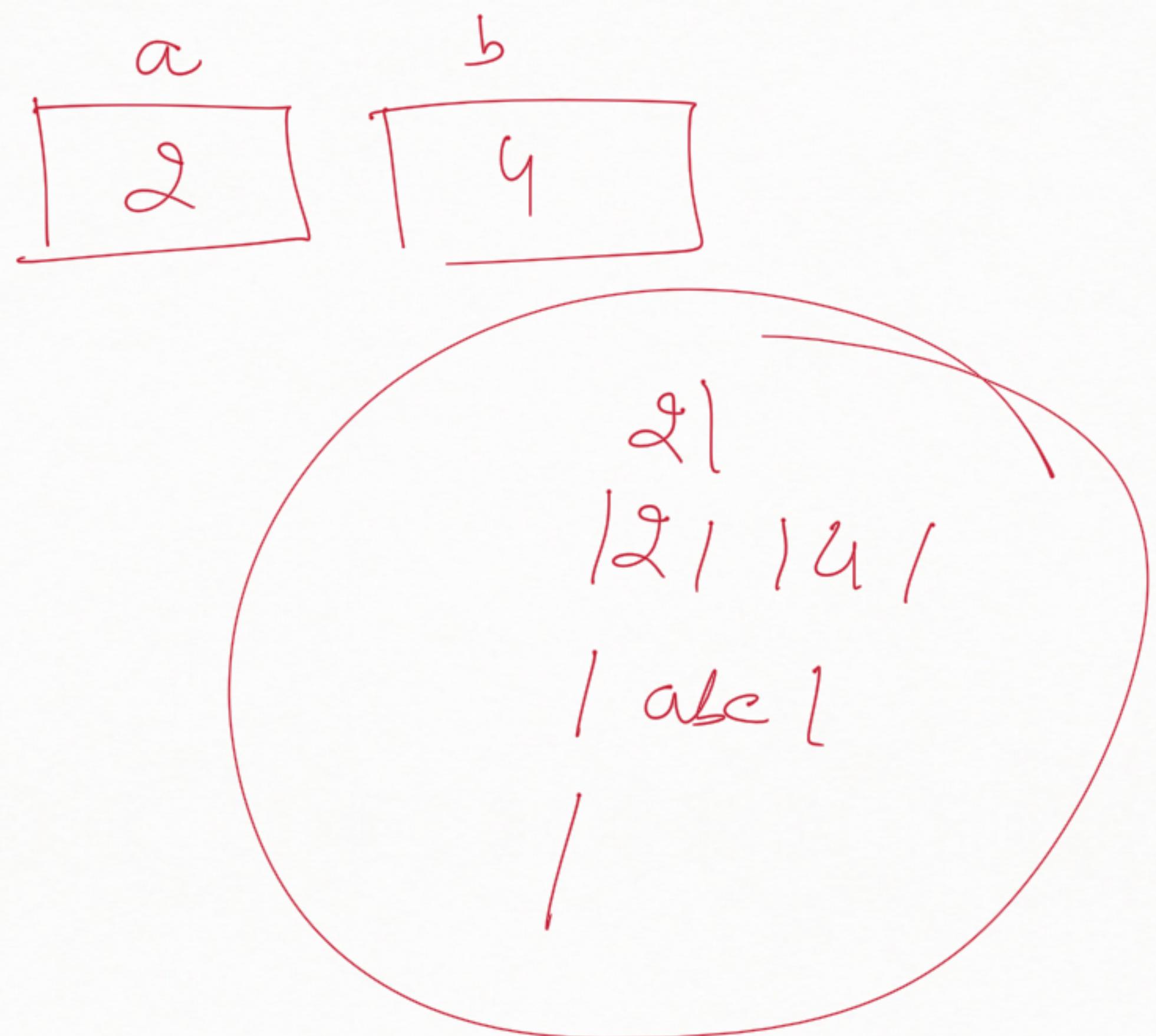
$\rightarrow b = \underline{4}$

$\rightarrow \text{print}(\underline{a})$

$\rightarrow \text{print}(a, \underline{b})$

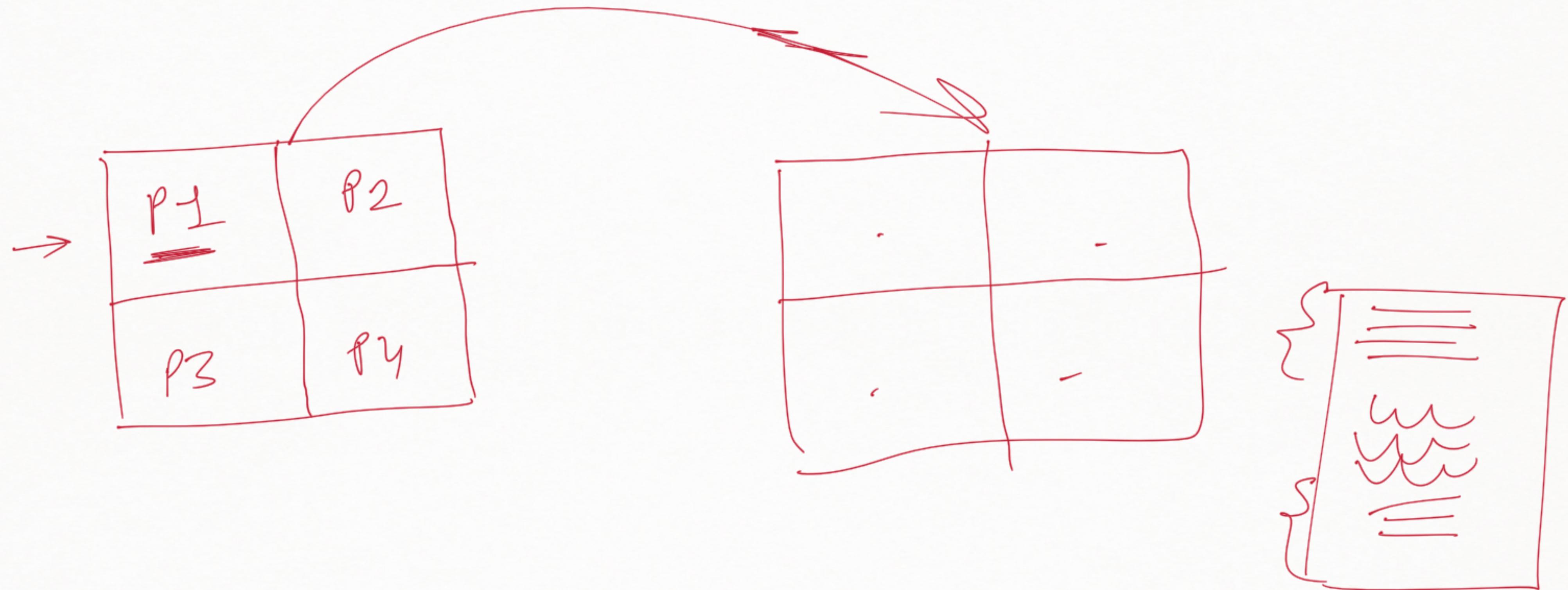
$\rightarrow \text{print}('abc' \underline{c})$

$\rightarrow$

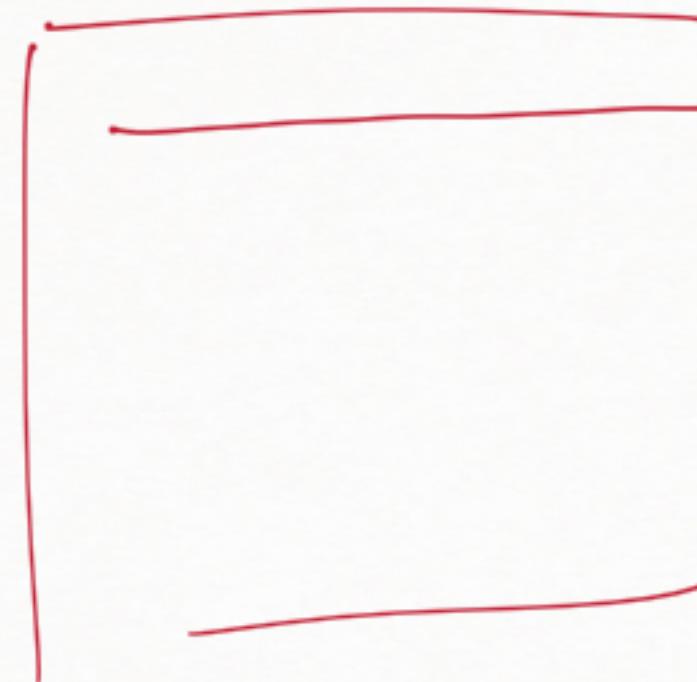


$\text{Scf} = \underline{\text{'}} \quad \text{end} = \underline{\text{'\\n'}} \underline{\text{'}}$

Comments in Python:-

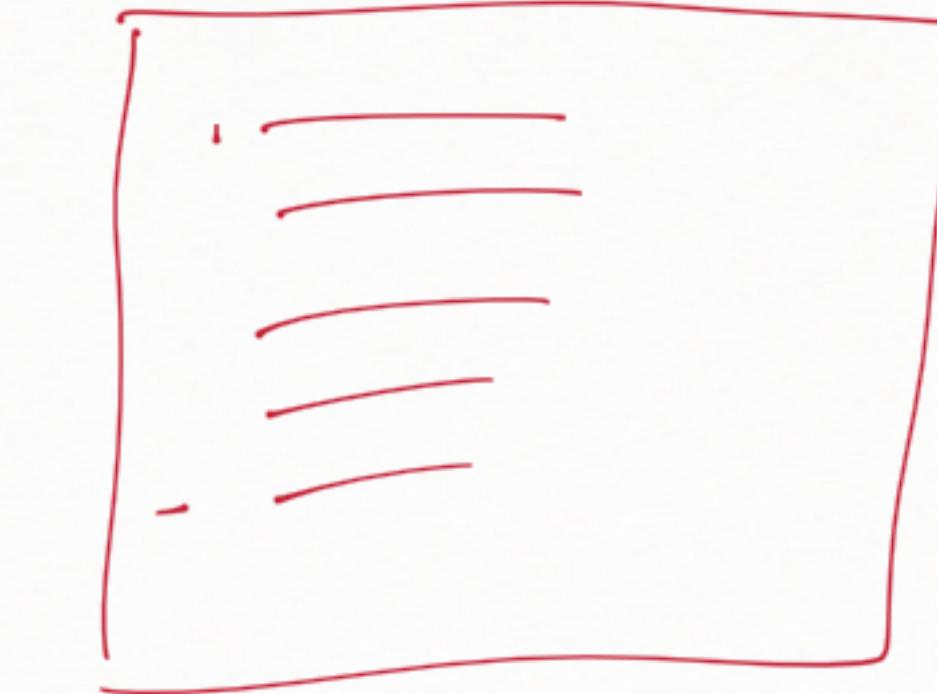


#



Single line

Comment



Multi line comment

. " " " = " "

" " "



" " "

## Data type in Python:

### Number

int  $\rightarrow$  -n to +n

float  $\rightarrow$  -n.n to +n.n

complex  $\rightarrow$   $2+9j$   
 $\rightarrow$   
real imag

$j \rightarrow \sqrt{-1}$ .

String :

'2'  
"2"  
'''2'''  
""2""

collection of charact -

'abc' → strg

'a' → str

-3	-2	-1
a	b	c
0	1	2

$x : 'abc'$

$x \leftarrow$

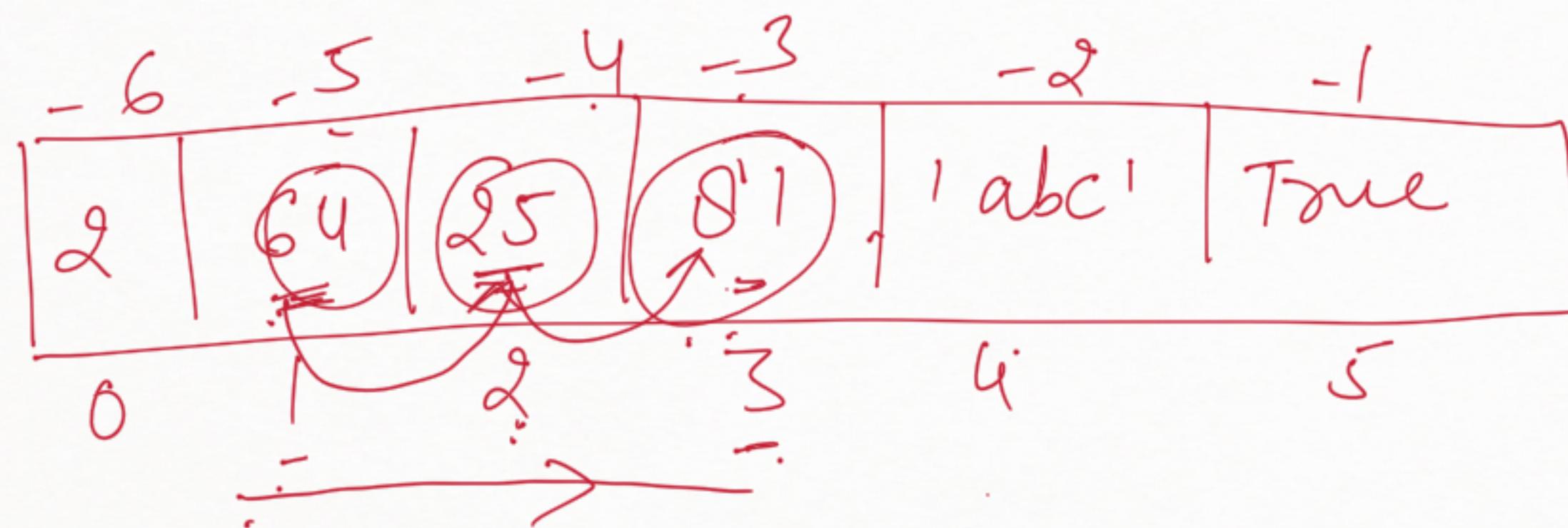
$x[0]$  or  $x[-3]$

→ 'a'

$x[-2]$  or  $x[1] \rightarrow b,$

$x[-1]$  or  $x[2] \rightarrow 'c'$

$a = [2, 64, 25, 81, 'abc', \text{True}]$



$\ln[\underline{\text{start}} : \underline{\text{stop}} : \underline{\text{step}}]$

$a[-5 : -2 : 1]$

$[64, 25, 81]$

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

$$-4 + 5 = 1$$

$a[1 : 4 : 1]$

$a[-5 : 4 : 1]$

$a[1 : -2 : 1]$

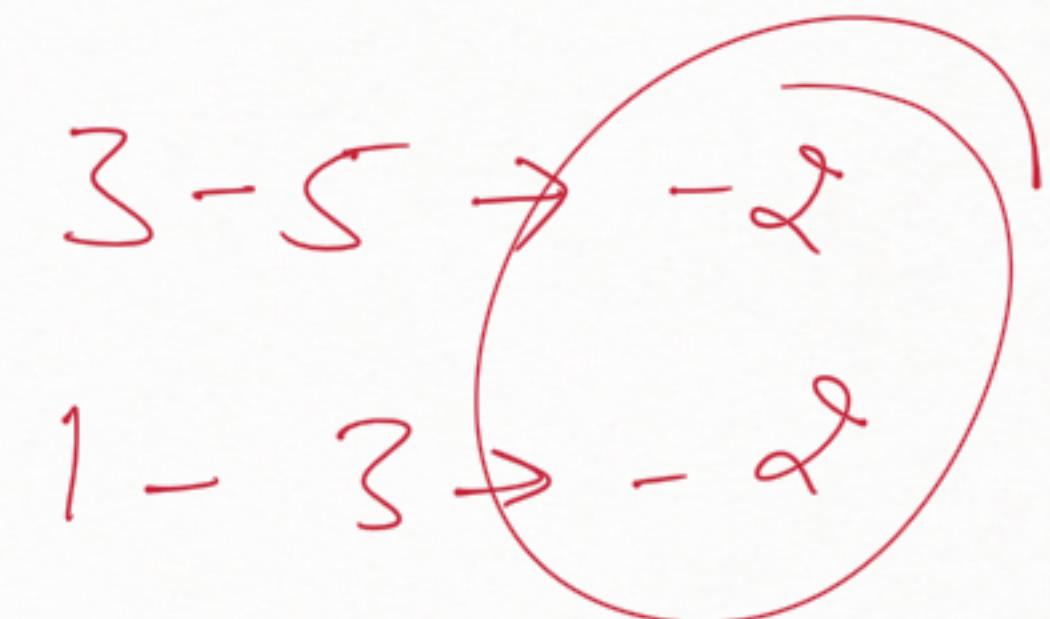
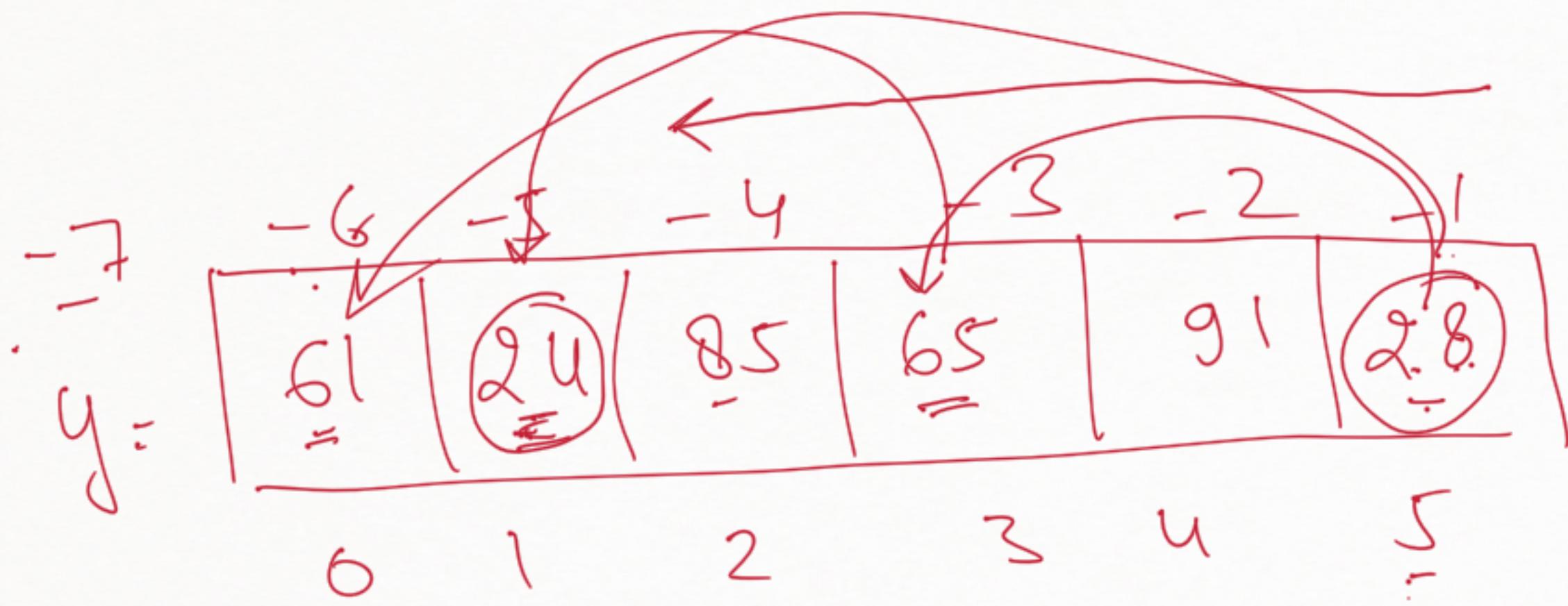
$-5$	$4$	$2$	$-2$	$-1$
$24$	$81$	$61$	$92$	$85$
$\div$				$4$

$$4 - 0 = \textcircled{4}$$

$[24, 85]$

$x[0:5:4]$

$x[-5:5:4]$



$$[28, 65, 24]$$

$$y[5:-6:-2]$$

$$y[-1:0:-2]$$

$$[28, 61]$$

$$y[5:-7:-5]$$

$$y[-1:-7:-5]$$

$$0 - 5 \rightarrow -5$$

Start

M:N:L

M

M

M

M

0

0

0

0

Stop

N-1

N-1

len(a) - 1

"

N-1

N-1

len(a)-1

"

Step

L

+1

+1

L

L

+1

L

+1

$$a = \boxed{2 \downarrow 8 \downarrow 45 \downarrow 61 \downarrow 29} \quad \begin{matrix} \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 0 & 1 & 2 & 3 & 4 \end{matrix}$$

a[1:5:2]  $\rightarrow [8, 61]$

a[2:5]  $\rightarrow$

list-name [ start : stop : step ]

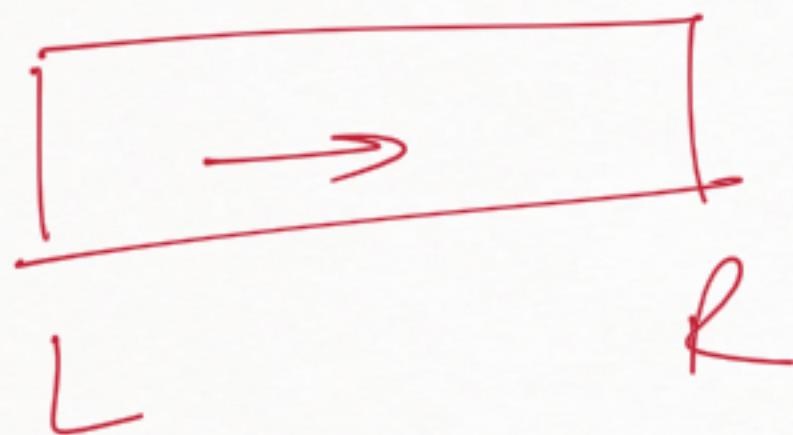
a =

-6	-5	-4	-3	-2	-1
2	8	9	27	67	25
0	1	2	3	4	5

[ 2, 8, 9 ]

a[0:3:1]

Slicing  $L \rightarrow R$



Start  $\rightarrow 0$

Stop  $\rightarrow -1$

Step  $\rightarrow +1$

Slicing  $R \rightarrow L$



start  $\rightarrow -1$

stop  $\rightarrow 0$

-

step  $\rightarrow +1$

$$a = \left[ \begin{array}{cccccc|c} 2 & -6 & -5 & -4 & -3 & -2 & -1 \\ 2 & | & 9 & 61 & 28 & 49 & 62 \\ \hline 0 & 1 & 2 & 3 & 4 & 5 & 6 \end{array} \right] \rightarrow$$

$$a[1:6:3] \rightarrow [9, 49]$$

$$a[1:6] \rightarrow [9, 61, 28, 49, 62] \\ \rightarrow$$

$$a[1:] \rightarrow [9, 61, 28, 49, 62, 40]$$

if step →  $\frac{+}{-}$   
 L to R

$\frac{-}{+}$   
 R to L

$a =$	$\begin{array}{c} -7-6 \\ \hline 6   81   -6   49   82   83   45 \\ \hline 10 1. 2 3 4 5 6 \end{array}$
$a[::]$	$[4, 61, 26, 49, 82, 83, 45]$
$a[6:-2:-1]$	$[45, 83, 82, 49, 26, 61, 4]$
$a[5:1]$	$[]$
$a[5:]$	$[83, 45]$

$a[::] \rightarrow [4, 61, 26, 49, 82, 83, 45]$   
 $a[6:-2:-1] \rightarrow [45, 83, 82, 49, 26, 61, 4]$   
 $a[2:89:-2] \rightarrow [26, 82, 45]$   
 $a[:: -24:-2] \rightarrow [45, 82, 26, 4]$

## Adding elements

append() → add one element at last of the list

insert() → add one element at your desired location

extend() → add more than one element at last of the list  
,

## Removing elements

pop() → remove one element by using index from list

remove() → remove one element ————— value from list

del → remove one or more than one

clear() → remove all —————

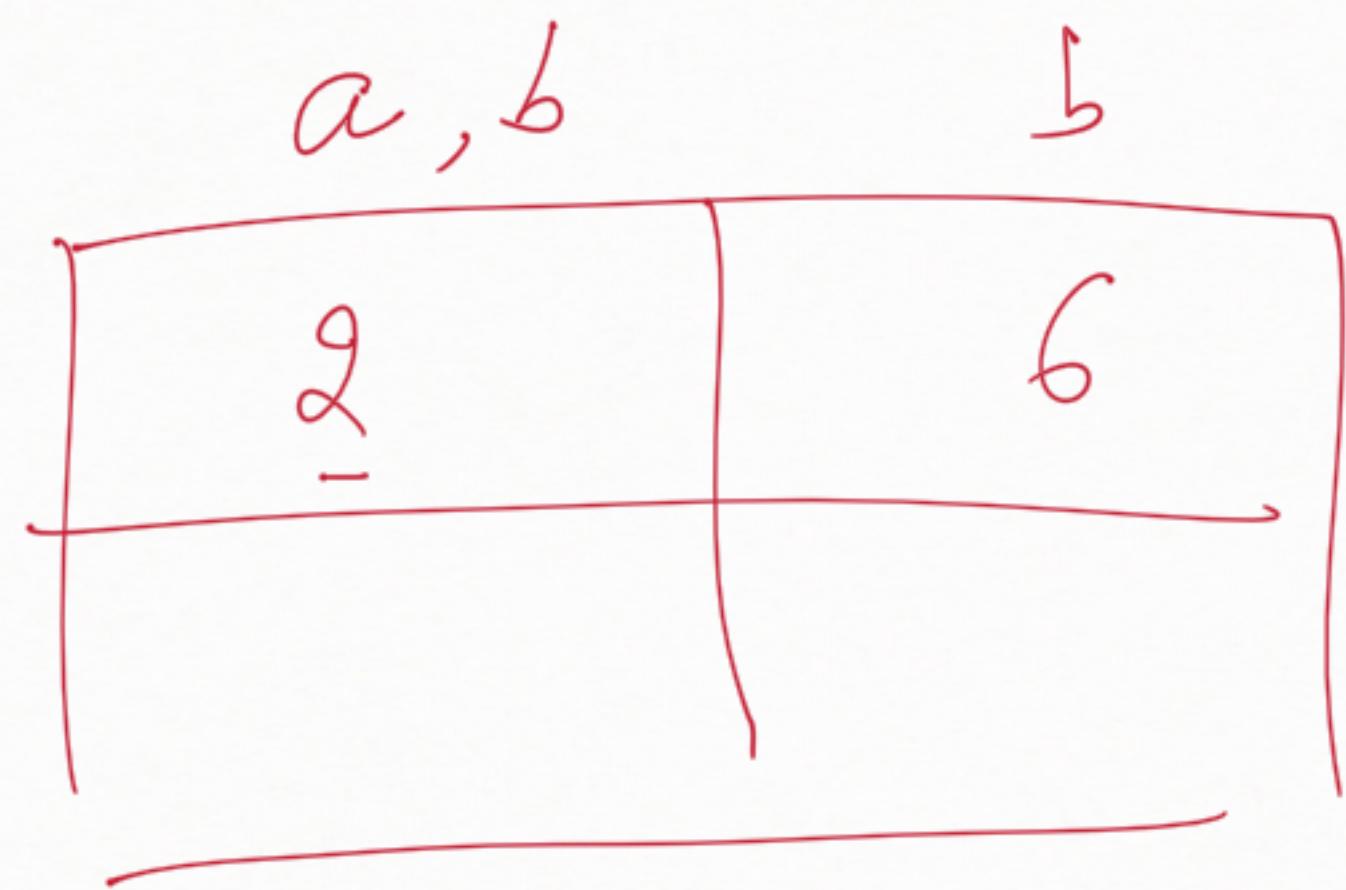
## other methods

- {
  - index() → accoring index value
  - count() → occur of any el
  - reverse() → give the element
  - sort() → sorting into ascend or descend <sup>ord</sup>
  - copy()

$$a = 2$$

$$b = 6$$

$$\begin{matrix} c \\ - \end{matrix} = 2$$



$a = [11, 22]$

$b = [33, 44]$

$c = a$

$a.append(22)$

$c = a.copy()$

