

point

ginput

variables

loop → counting.

$i \geq 10$

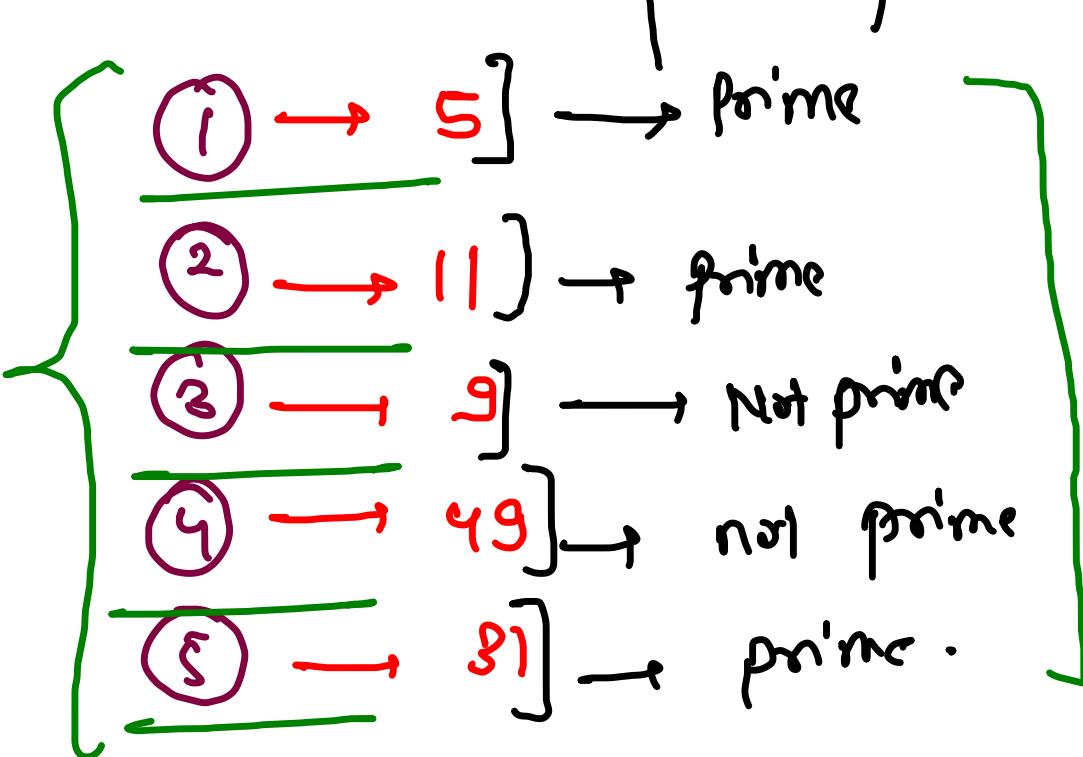
$i++$

$i--$

prime Numbers →

$t = 5$.

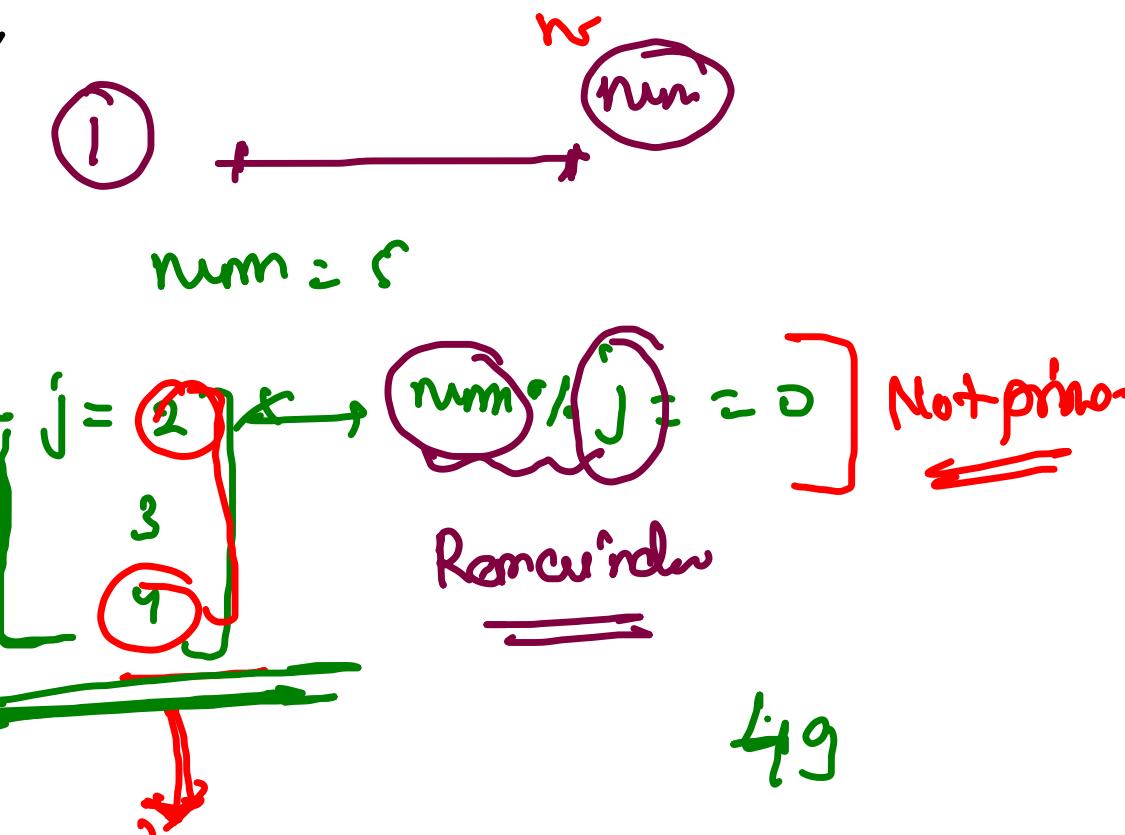
after calculation



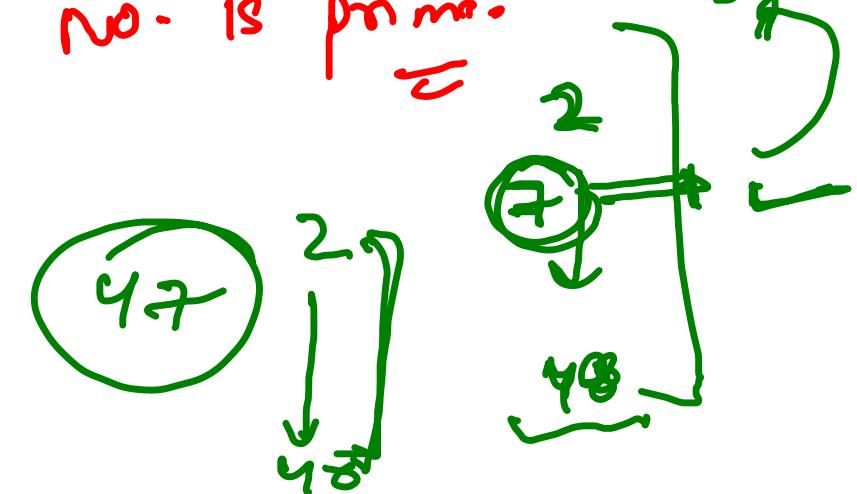
At a moment →

Completely divide. → Not prime

Not divide. → prime \times



No. is prime.



num = 49

div = 2 num % div == 0 → not prime

3 x

4 x

5 !x

6 x

7 !x

8 :
:
:
48

→ break;

flag → if → True.

flag → False

num = 49 }

2 47 % 2 != 0 } ← prime,

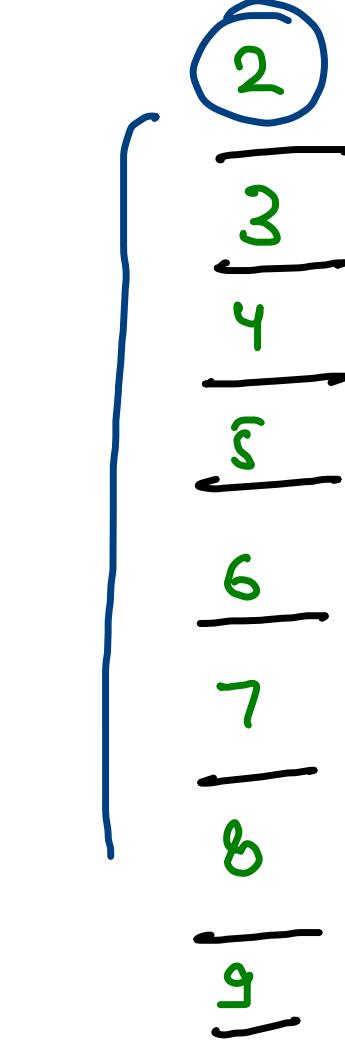
3
4
5
6
:
:
46
48

num = 37 → smallest factor = 2

$$\begin{array}{r} 18 \times 2 = 36 \\ \hline \end{array} \quad \begin{array}{r} 15 \times 2 = 30 \\ \hline \end{array}$$

$$\frac{37}{2} = 18.5$$

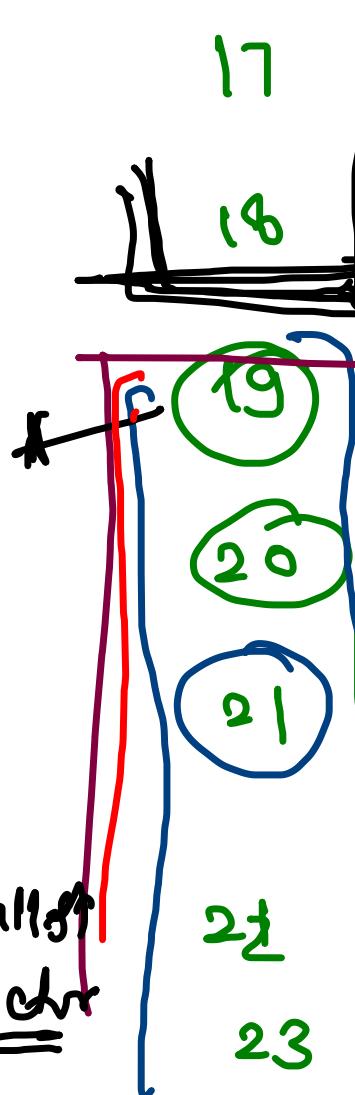
2
j



32

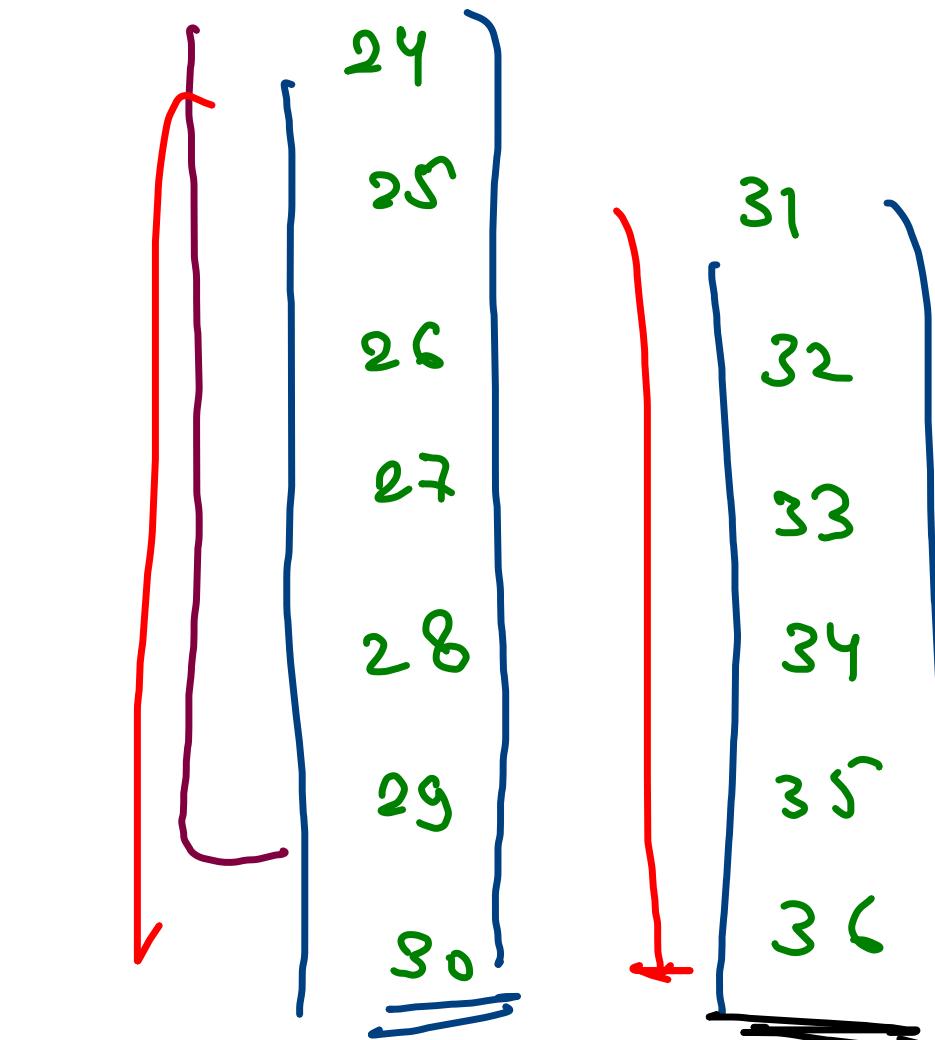
۲۰

small
fact

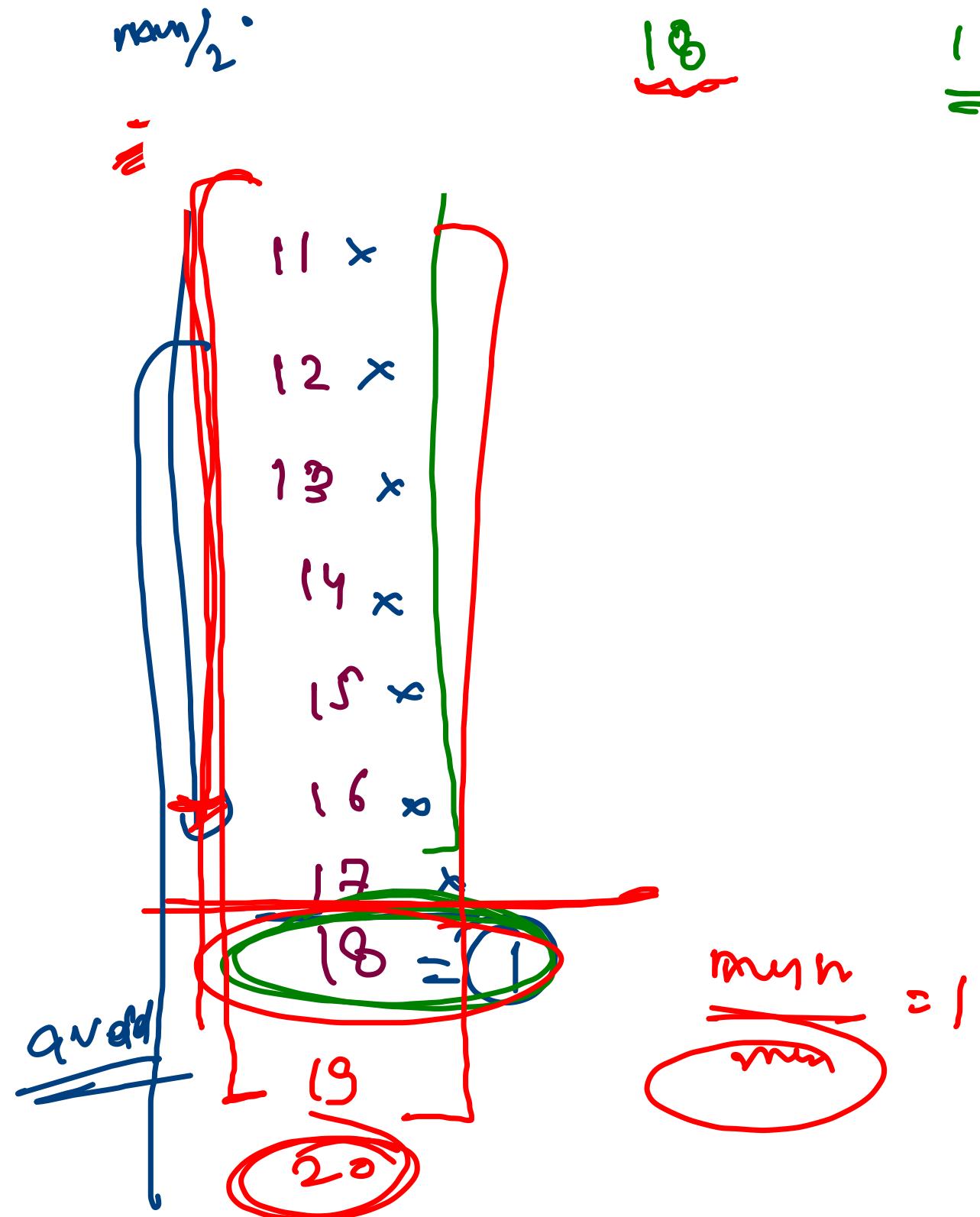
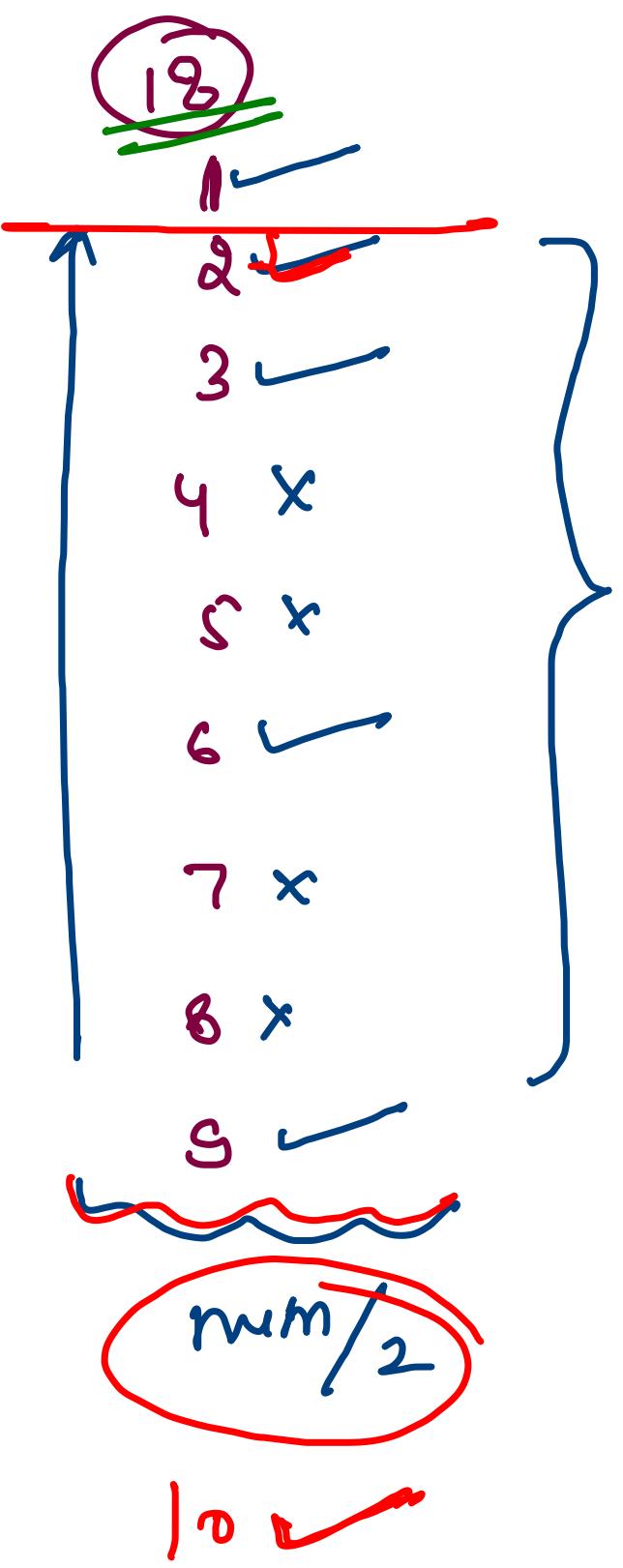


$$\underline{18 \times 2 = 3}$$

$$15 \times 2 = 30$$



$$\frac{37}{21}$$



1 to 18

$$\frac{18}{10} = 1.8$$

≈ 2

28

11

Method-3 (Prime Number)

36

$\underline{\text{num}} = \underline{36}$

1×36

36×1

2×18

18×2

3×12

12×3

4×9

6×6

Root

Bingo!

4

~~num 1.2 ε = 0~~

37

~~nu 1,28 = -~~

A hand-drawn diagram of a neural network with three layers. The first layer has 6 neurons, the second has 9, and the third has 18. Arrows indicate connections between neurons in adjacent layers. Some connections are highlighted in green, while others are red. The word "Repeat" is written at the bottom right.

22

A hand-drawn diagram in blue ink. It features a vertical line with a bracket underneath it containing the number '37'. To the right of this, there is a circular arrow indicating a clockwise direction. Below the vertical line, a diagonal arrow points from left to right.

Affen
V37

$n = 18;$

(int $j = 2 : j \leq \sqrt{n}; j++) \{$ 

$i = 2;$
 if ($n \% j == 0$) {
 isPrime = "false";

 break;


=

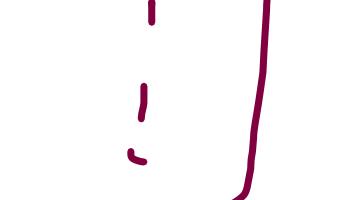
}

 | :
 | : instead
 | :
 | :
 that 

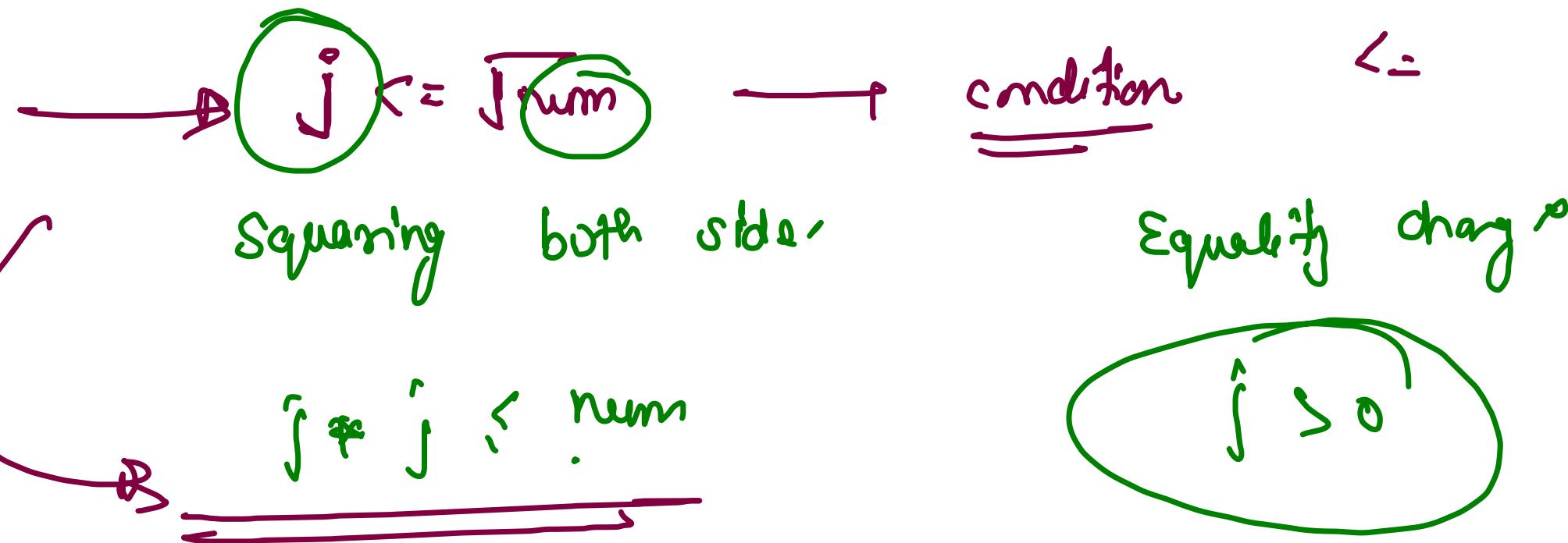
method ②
C

2
3
4
.
.
18

Guaranteed


2
3
4
5
.
.

6

method



- $2 - n-1$
 method ① → $\underbrace{\dots}_{\dots} 10,000$ - Iteration
 $2 - n/2$
 method ② → $\underbrace{\dots}_{\dots} 5,000$ - Iteration
 $2 - \sqrt{n}$
 method ③ → $\underbrace{\dots}_{\dots} 100$ - Iteration

$$\begin{array}{c} 10.000 \\ \hline 100.00 \end{array}$$

$$\sqrt{100.00} = 100$$

36

$n_1 \times n_2$

2×18

3×12

4×9

$h_2 \times n_1$, converse facts

18×2

12×3

9×4

$\leq C \times 6$

→ perfect fact

single factor

$m \times n = 37$

6

$j <= \sqrt{n_{\text{num}}}$

$\sqrt{n_{\text{num}}} = p$

37

$2 \rightarrow 2 \times 18$

~~3~~ → 3×12

~~4~~ → 4×9

~~5~~ → 5×7

~~6~~ → 6×5

~~7~~ → 7×7

~~8~~ → 8×8

~~9~~ → 9×9

10

11

12

13

14

15

16

17

18

converse facts

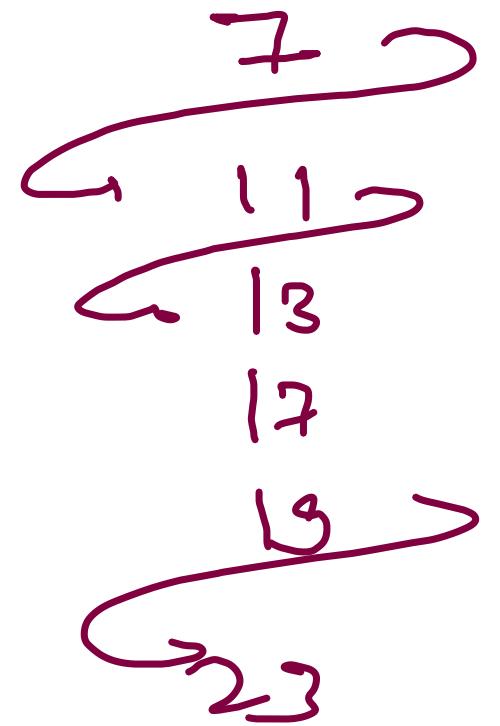
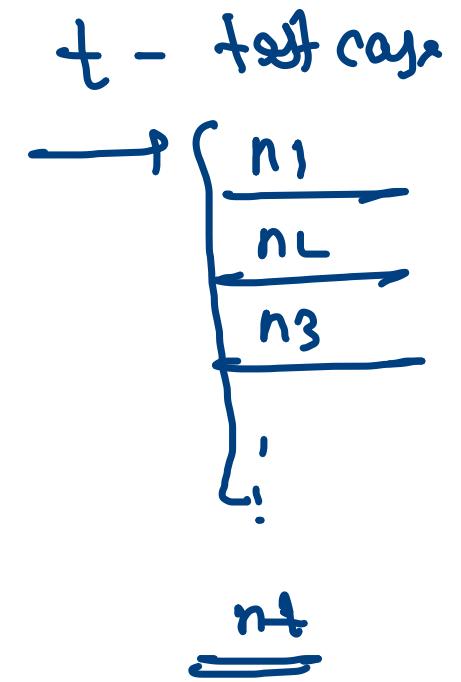
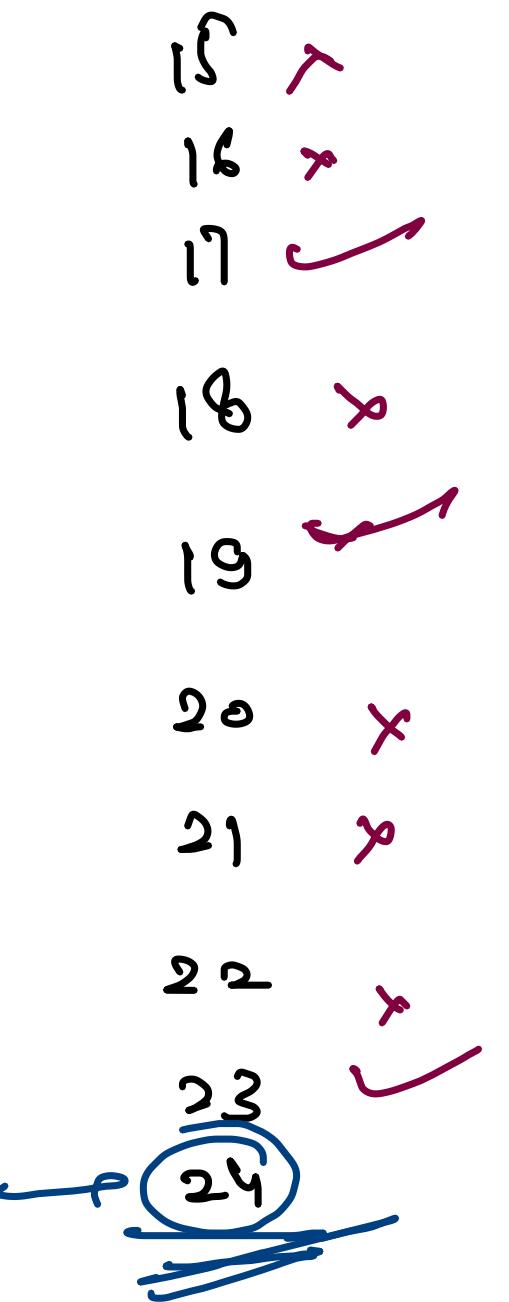
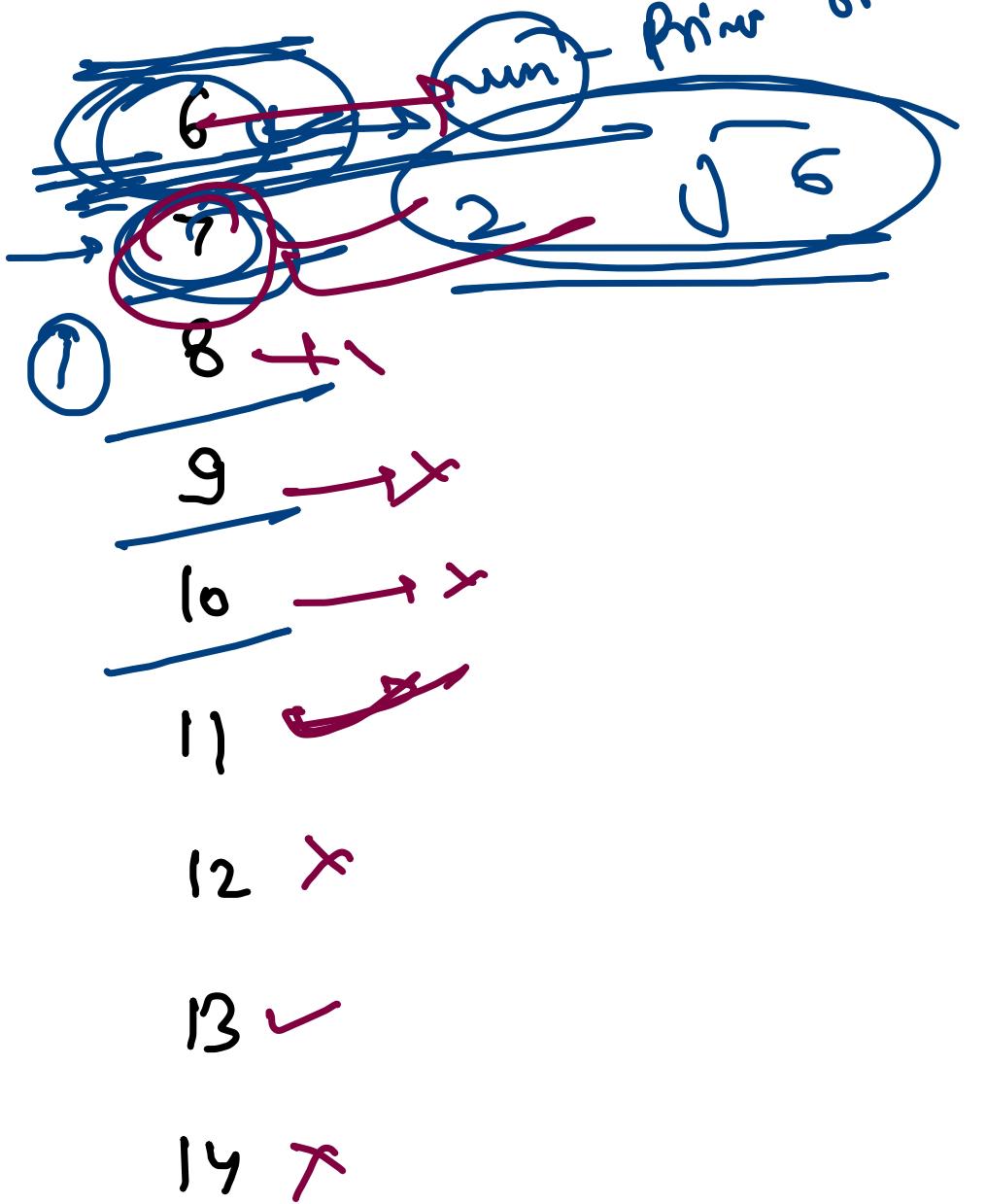
Discard

$\hat{j} < \sqrt{n_{\text{num}}}$

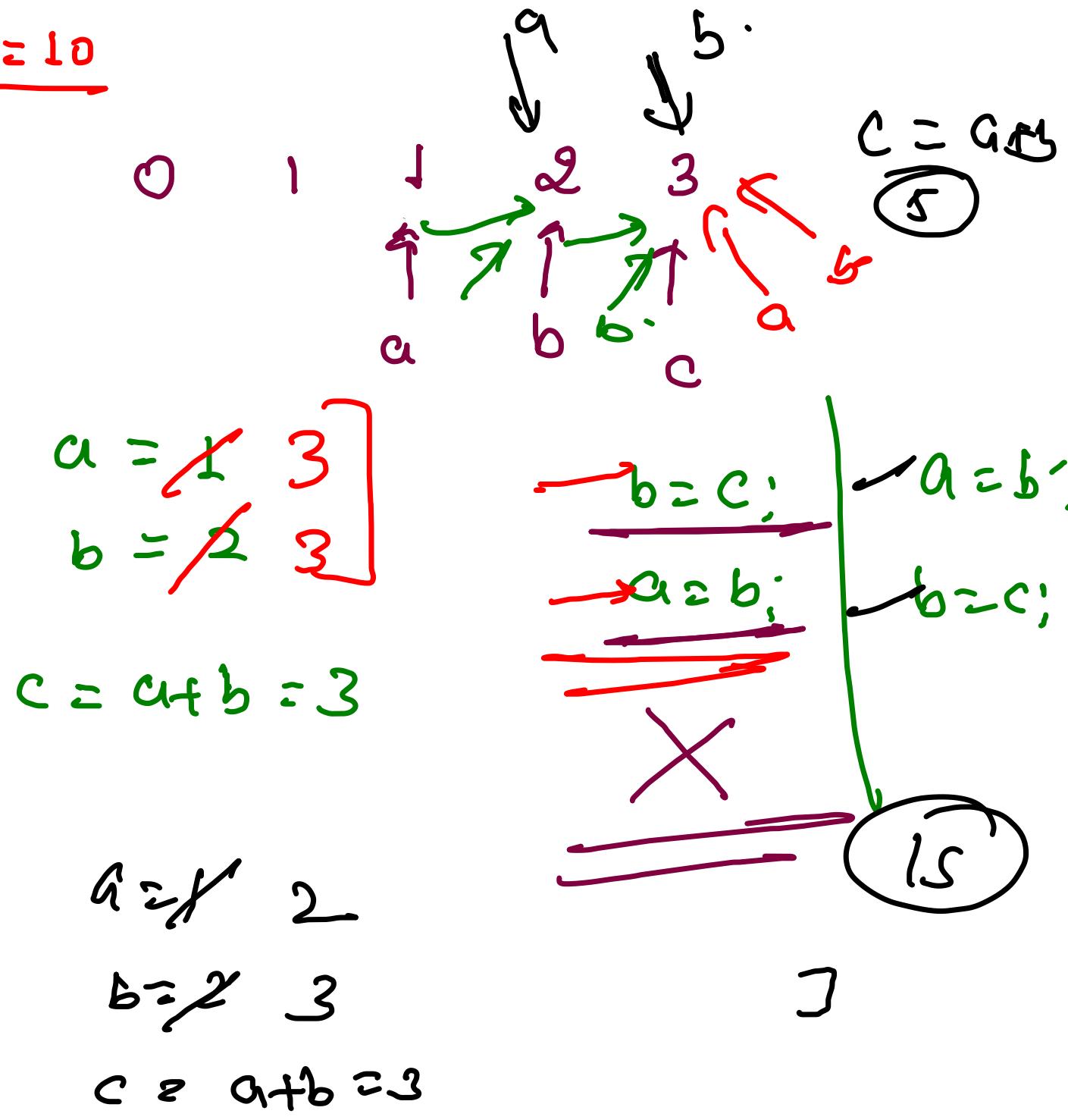
$\hat{j} + \hat{j} <= n_{\text{num}}$

$$l_0 = 6$$

$$n_i = 24.$$



$$\underline{n = 10}$$



$n \in \text{scn} \cdot n_{\text{inf}} + \{\text{inf}\}^*$;

$\int_{\Sigma} \alpha \in D$

```
int b=1;
```

if (i == 0) {

sys (9);

$\int_{n=2}^{\infty}$

sys (b) ?

```
for( int i=3; i<=n; i+=t) {
```

$\int \text{int } c = \alpha f b;$

Sys₀(c);

0

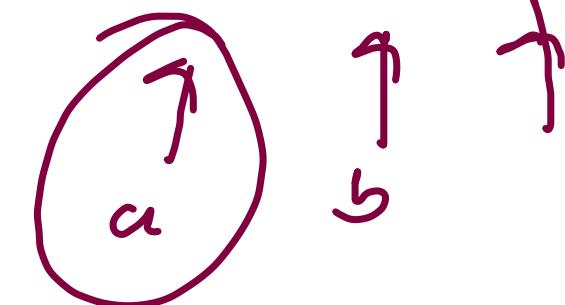
1

1

2

3

5 + 8 - 13 ..



int a = 0

int b = 1

~~a = 0~~ 1 2 3 5

~~b = 1 2 3 5~~ i = 1; i < 10; i++

- 1 → print(a); update
- 2 → print(a); update
- 3 → print(a); update
- 4 → print(a); update
- 5 → print(a); update

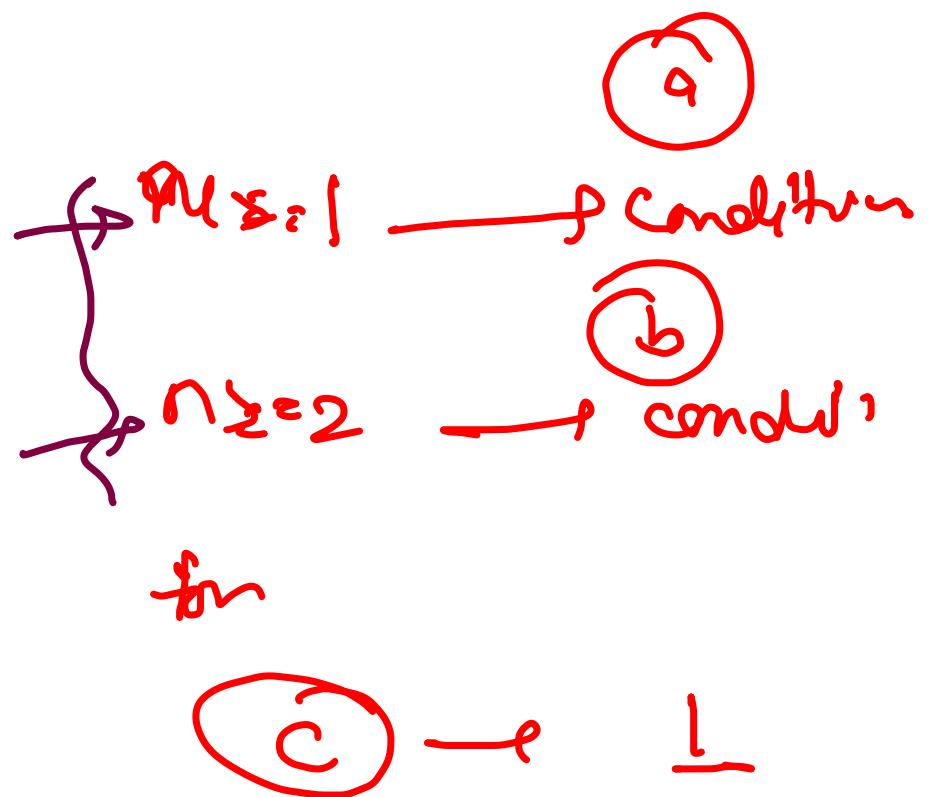
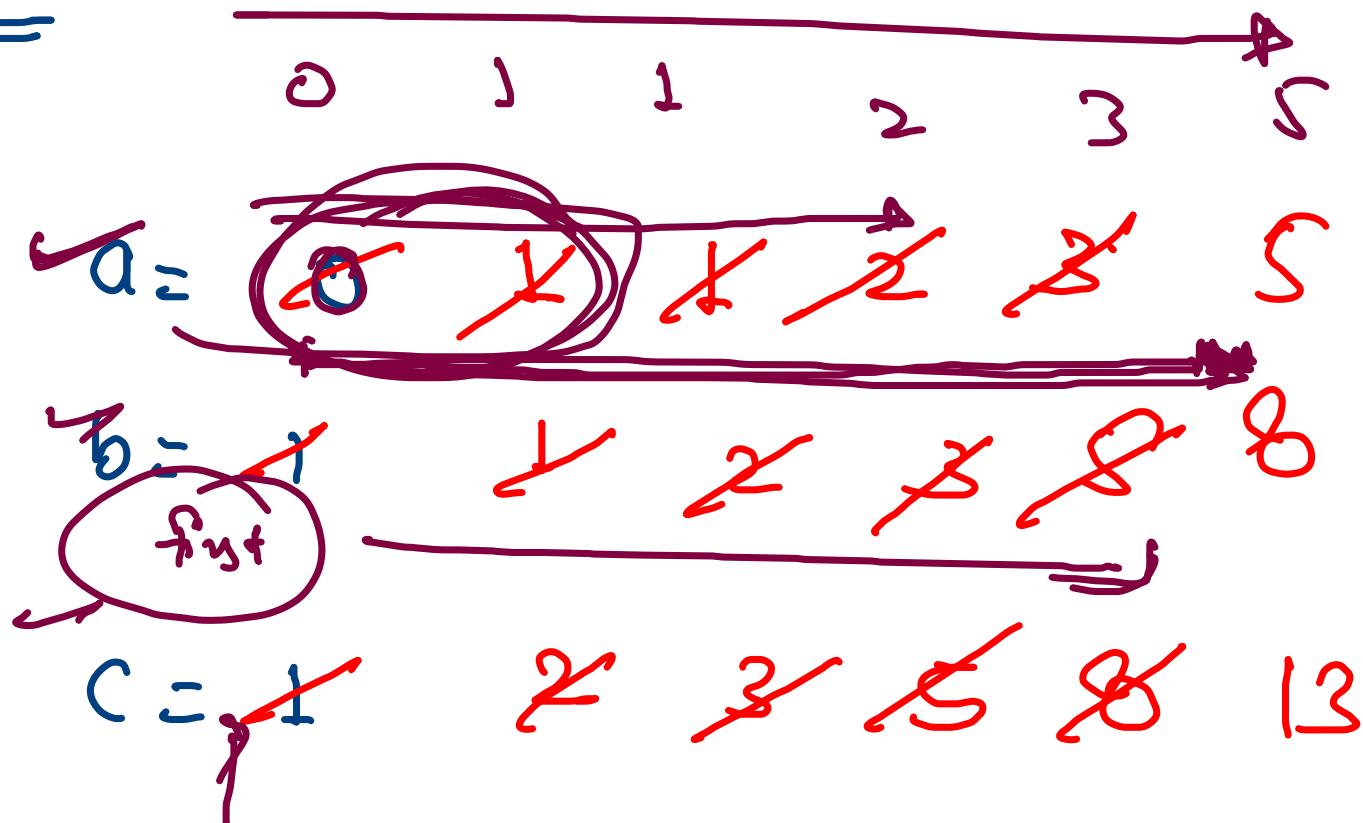
Update,
int c = a + b;
a = b;

b = c

6
7
8
9
10

0
1
1
2
3
5

$n=10$



0
1
2
3
4
5
6
7
8
13

6 5 7 8 4 3 8 3

no. of digit ??

Splitting - based

$$\frac{\text{num}}{10}$$

6 5 7 8 4 3 8
↓
~~3~~

$$\cancel{\text{Count} + \text{Count} + 1}$$

①

6 5 7 8 4 3 8
↓
~~3~~

①

6 5 7 8 4 3
↓
~~3~~

①

6 5 7 8 4
↓
~~4~~

①

6 5 7 8
↓
~~8~~

①

6 5 7
↓
~~7~~

①

6
↓
~~6~~

①

integer
integer

float = integer
integer

float = integer
float

float
or
integer

$$\text{num} = \frac{43}{10} = 4$$

$$\text{num} = \frac{183}{10} = 18$$

$$\text{num} = \frac{18}{10} = 1$$

no. of digit

```

int num = scn.nextInt();
// splitting num = num / 10;

int count = 0;
while(num != 0) {
    num = num / 10;
    count = count + 1;
}

System.out.println(count);

```

Count = Count + 1;

Count
+ = 1;

↑
operator

Count ++;
=====

a = a operator b;
a ↑
operator = b;

int count = 0; 1 2 3 4 5 6 7

num = 6 7 5 8 3 2 9
↓

num = 6 7 5 8 3 2
↓

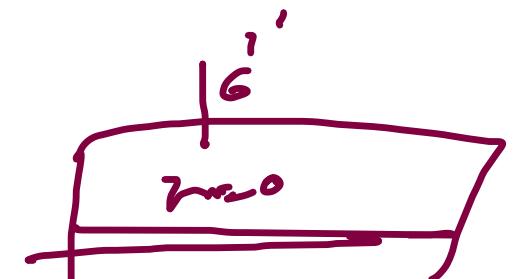


num = 6 7 5 8 3
↓

num = 6 7 5 8
↓

num = 6 7 8
↓

num = 6 8



$$\frac{6}{15} \approx 0.4 \geq 0$$

$$\frac{6}{15} \geq 0$$

Digits of a Number

1 0 0 0 0 0 0 0

Total digits = 8

6 5 7 8 4 3 8 3
digit number

100 00000 → 10^7 ≡ $10^{1(\text{Total digit} - 1)}$

6
5
7
8
4
3
8
9
Total digit

5 7 8 4 3 8 3
number

100 00000 → 10^7
power = $\frac{1}{10}$
100 00000

7 8 4 3 8 3
number

1000 00 → 10^4

8 4 3 8 3
number

1000 → 10^3

4 3 8 3
number

100 → 10^2

3 8 3
number

10 → 10^1

8 3
number

1 → 10^0

3
number

0 → 10^0

$$\text{num} = \underline{\hspace{10em}}\ 643\ 00$$

A hand-drawn diagram consisting of a blue circle containing the number 6, connected by two black arrows pointing towards the right towards the number 4300.

A diagram consisting of two circles. The top circle is blue and contains the number '4'. A horizontal line extends from its right side to a second circle below it. This second circle is also blue and contains the number '3'. A red arrow points from the top circle towards the bottom one.

A hand-drawn diagram consisting of a blue circle containing a red number '3'. A red arrow points from the right towards the circle.

A hand-drawn diagram consisting of several elements: two parallel horizontal lines on the left; a small blue circle in the center; and a large blue arrow pointing downwards and to the right on the right.

A hand-drawn diagram consisting of a horizontal black line. At the right end of the line, there is a small open circle. A curved arrow, also drawn in black ink, originates from the right side of the line and points downwards and to the left, ending near the circle.

Paper :
 $10000 \div 10^4$
 $n = \text{num}$

$$J \rightarrow 10^2$$

$$\rightarrow 10'$$

A hand-drawn diagram consisting of two blue arrows. Each arrow originates from a small red dot at the top of the frame and points downwards towards a thick purple horizontal line. The arrows curve slightly as they descend.

dig it
times

~~→ Sthm~~

$$\text{total digit} = 5.$$
$$\text{power} = 10^n (f \cdot d - 1) = 10^4$$
$$= 10000$$

digit = $\min \leftarrow 0 / 10$ power.

num = num % power

power = power / 10

Steps → count digit + pow

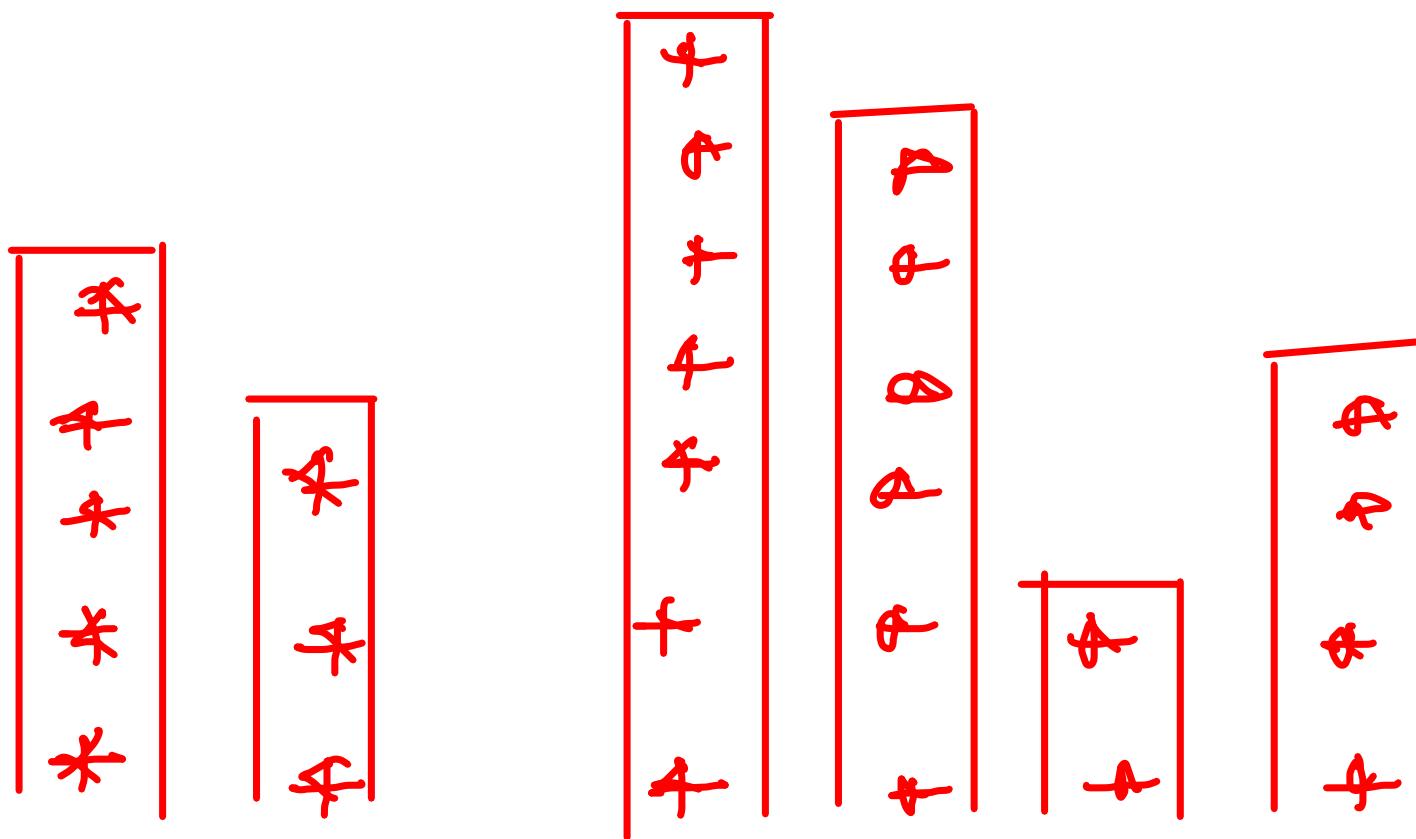
\rightarrow loop, \sqcup digit

The diagram illustrates a loop invariant for a power reduction algorithm. On the left, there is a large arrow pointing right, above which the word "loop" is written. Below the arrow is a horizontal line with arrows at both ends, representing the loop boundary. To the right of the loop boundary, three statements are listed vertically, each preceded by a bracket indicating they are part of the loop invariant:

- digit
- number
- power reduces

array →

5	3	0	7	6	2	4.
---	---	---	---	---	---	----



```

// cd and power
int cd = 0;
int power = 1;
int n = num;

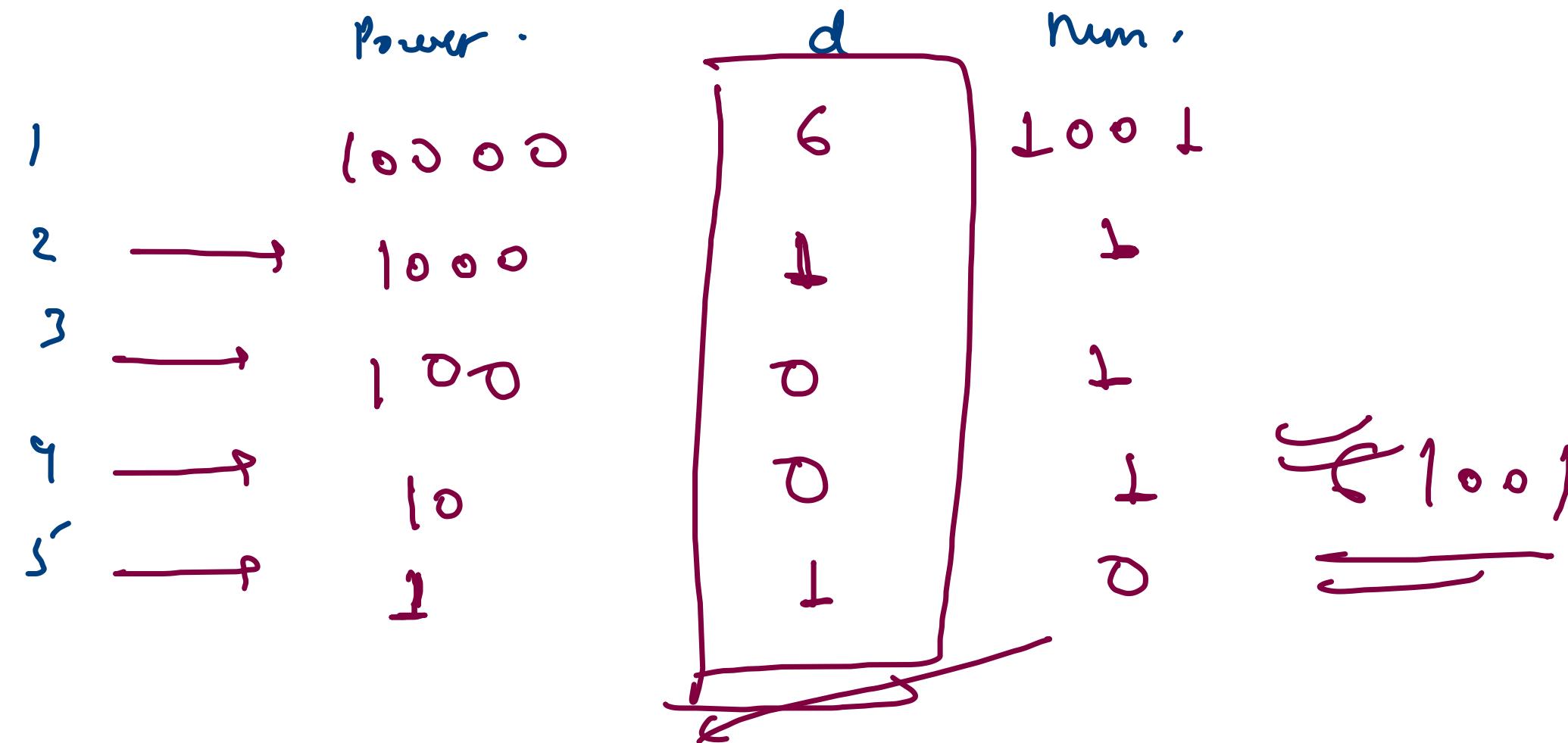
while(n != 0) {
    n = n / 10;
    power *= 10;
    cd++;
}

for(int i = 1; i <= cd; i++) {
    power = power / 10;
    int d = num / power;
    num = num % power;
    System.out.println(d);
}

```

$$\frac{1001}{1000} \approx 1$$

6 Loop
 $cd = 5$
power = 100000



6 3 4 0 0 1

1 0 0 0 0 0

$d=6$

num 34 001

$$cd = 6$$

$$\text{Power} = 10^n \underline{(cd-1)} = 100000$$

Say $\cdot 10^5$

1 0 0 0 0

digit = num / power;

num = num % power;

$$y_{10} = 0$$

$$(y_{10}) = 1$$

$$\frac{1}{100} = 0.01$$

$$\frac{4001}{1000} = 4.001$$

$$y_1 = 1$$

1

