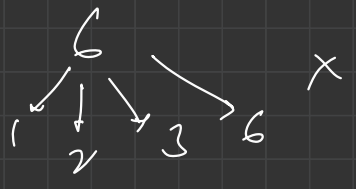
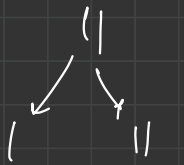
{positive integers} $\mathbb{N}$





etc.

check whether N is prime?

factors: 1 N

↓

numbers (int) which divide perfectly (rem = 0).

1 ✗ prime (two-factors, 1 and N)

✗ composite (more than two factors).

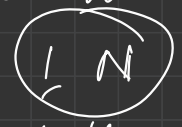
✗ → 1, 2, 4

2, 3, 5, ✗, 7, 8, 9, ---

(1 2) 13

(1, 2, ✗, 8) 1, 3, 9

from (2) to N-1 no number divides it?



check whether it divides N

(1) repetition ⇒ loop

i = 2,
i = 3
i = 4
⋮
i = N-1
i = N

init 2, 3, 4, ... condn ... upd.

```
for (int i = 2 ; i <= N-1 ; i = i+1 )
                  i < N        (i++)
{
    int rem = N % i;
    if (rem == 0)
    else
}
```

i divides N

i → (2, N-1)

```
int rem = N % i;
if ( rem == 0 ) {
    output → "not prime";
    isPrime = false;
}
```

N → 1, N, i

> 2 ✗

bool → true / false

variable

isPrime

true | false

```
if ( isPrime == true)
    cout << "Prime";
else
    cout << "Not Prime";
```

{ max
min }

mean = avg = sum of all values / no. of values =

N → no. of values

N = 5

2 4 -6 10 8

n

N value

N = 5

int n;
cin >> n;

int a, b, c, d, e;

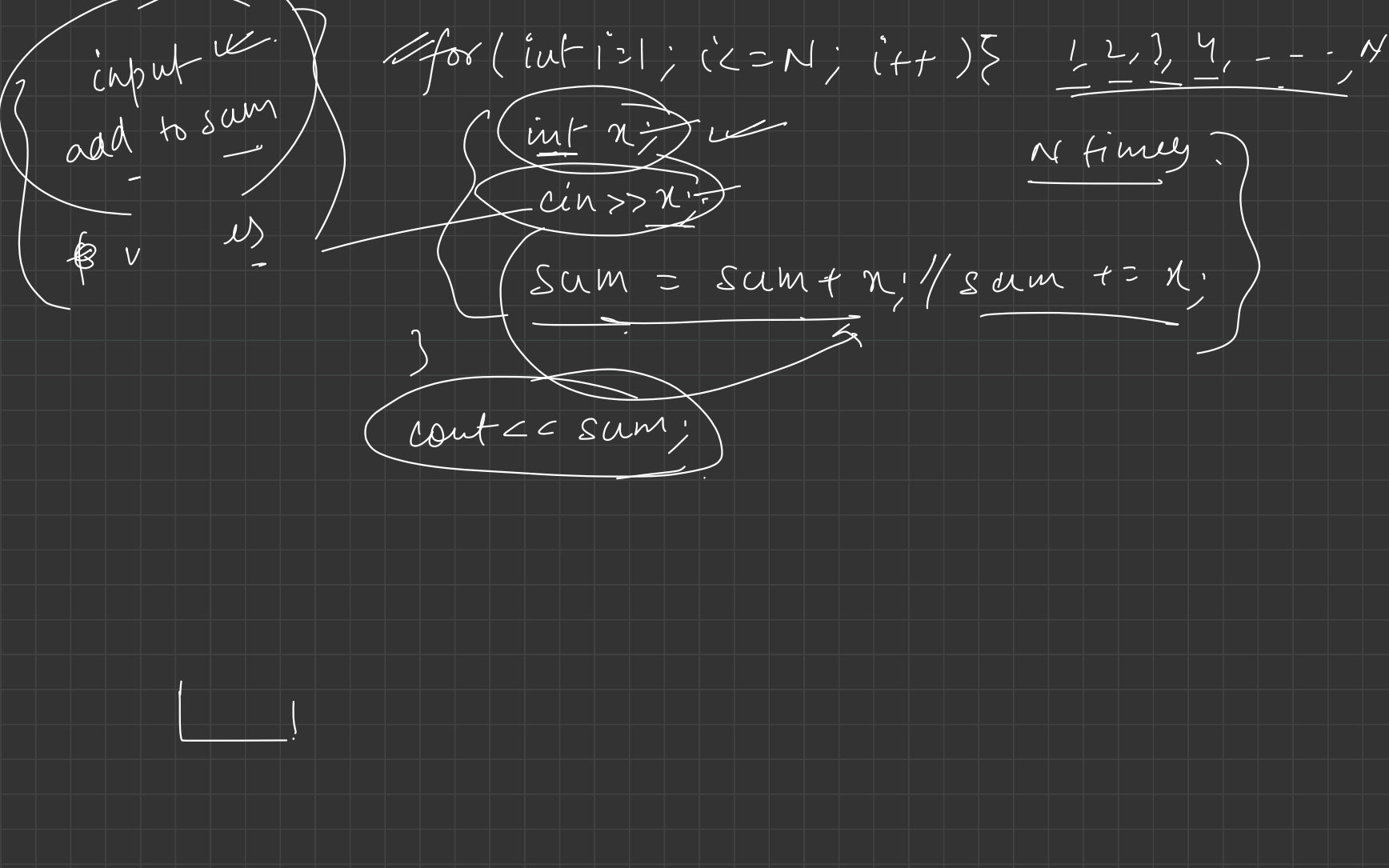
cin >> a >> b >> c - -

a+b+c

n

N

{ - - - - } int sum;


input N
add to sum
& v
for(int i=1; i<=N; i++){ 1, 2, 3, 4, ---, N
int x;
cin >> x;
N times.
sum = sum + x; // sum += x;
}
cout << sum;

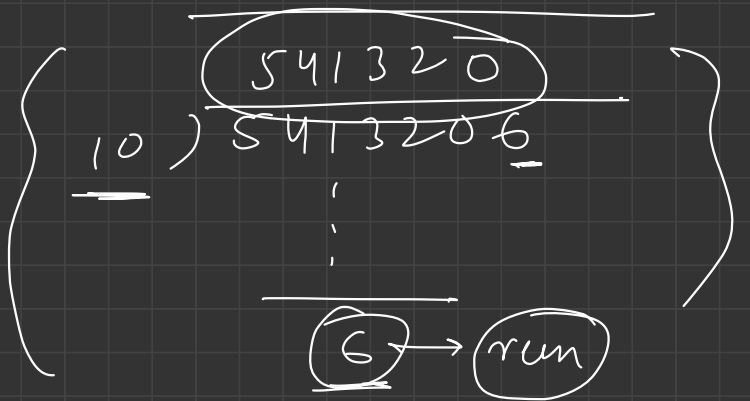
N = 541320 → sum of digits

541320

5 + 4 + 1 + 3 + 2 + 0 = 15

21

value ⇒ one's place digit ^find



num % 10

⇒ last digit

one's place value

N = 5413206

N/10 → 6 rem = last digit

divide by 10 → 541320 (quotient) & (rem)

(6) how many multiples of 10 in N

sum of digits of (541320 + rem(6))

= sum of digits of 5413206

5413206/100 = 54132

%100 = 06

12 | 456 789 11 356 405 11 98

100 -

10, 100, 1000, 10000 ... 10^{100}

N → N%10 → digit (8)

3412 8

N/10 → removed the last digit

N = 3412

now, ten's place value is the last digit ⇒ 2

N = 3412 8

Sum

work N%10 → 8 → sum

upd N/10 → N = 341 2

work N%10 → 2 → sum

upd N/10 → 34 1

N%10 → 1 → sum

N/10 → 34

N%10 → 4 → sum

N/10 → 3

N%10 → 3 → sum

N/10 → 0

repeating

↓

loop

work ⇒ %10, add to sum ; /10 ; updating

cond N > 0

8 + 2 + 1 + 4 + 3 = ans

init N

upd

and

work.

we are working on N

N % 10 → 0

N / 10 → 0

repeating

```
int n;
cin >> n;
int sum = 0;
while (n > 0) {
    sum += (n % 10);
    n = n / 10;
}
cout << sum;
```

```
int n; cin >> n;
sum = 0;
for( ; n > 0 ; n = n/10) {
    int lastdigit = n % 10;
    sum += lastdigit;
}
cout << sum;
```

```
|
0 |
| 0 |
0 | 0 |
| 0 | 0 |
0 | 0 | 0 |
```

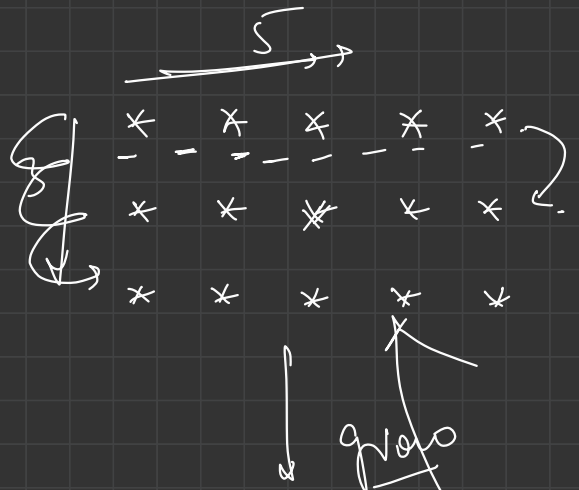
show

```
cout<<" | "<<endl;
cout<<" 0 | "<<
```

(N) → no. of rows or lines

and print the pattern for that many lines/rows

any no. of lines/rows ⇒ loops



number of lines

3 × 5

repetition inside repetition

loops in loop

nesting of loops

take input x & y

print rectangle (*) of dimensions (x × y)

21.

```
for( i=1 ; i<=3 ; i++) {

    cout << "* * * * *" << endl;

}
```

3x5