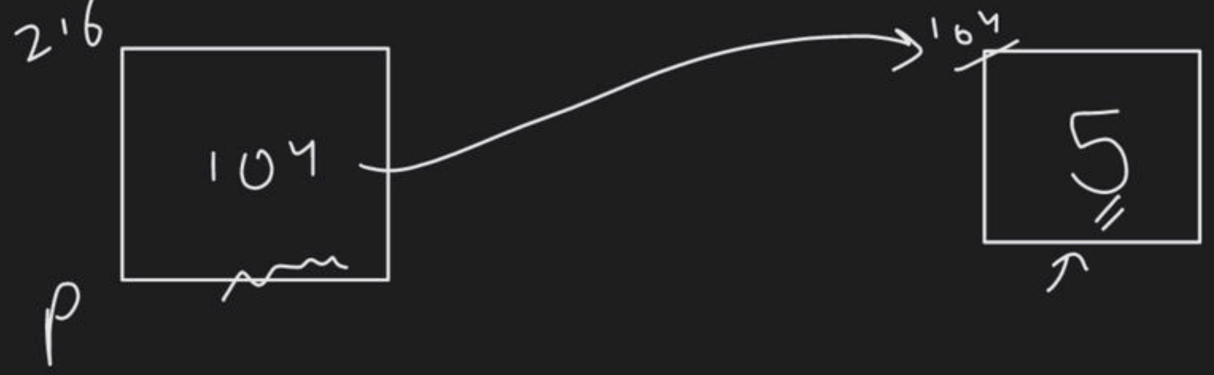
Pointers - Level 3

Special class

Love Babbar • Mar 5, 2023

int a = 5;

int * p = &a;



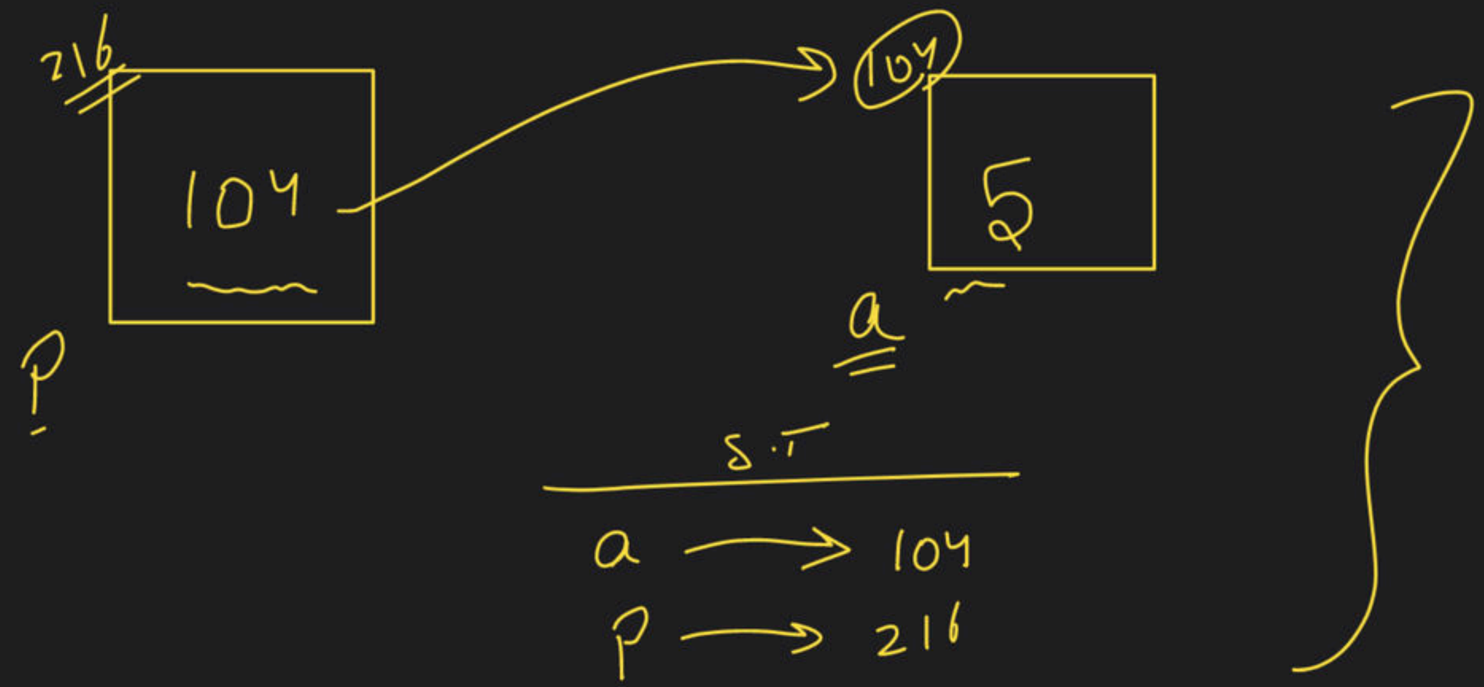
S.T

a → 104

p → 216

int a = 5;

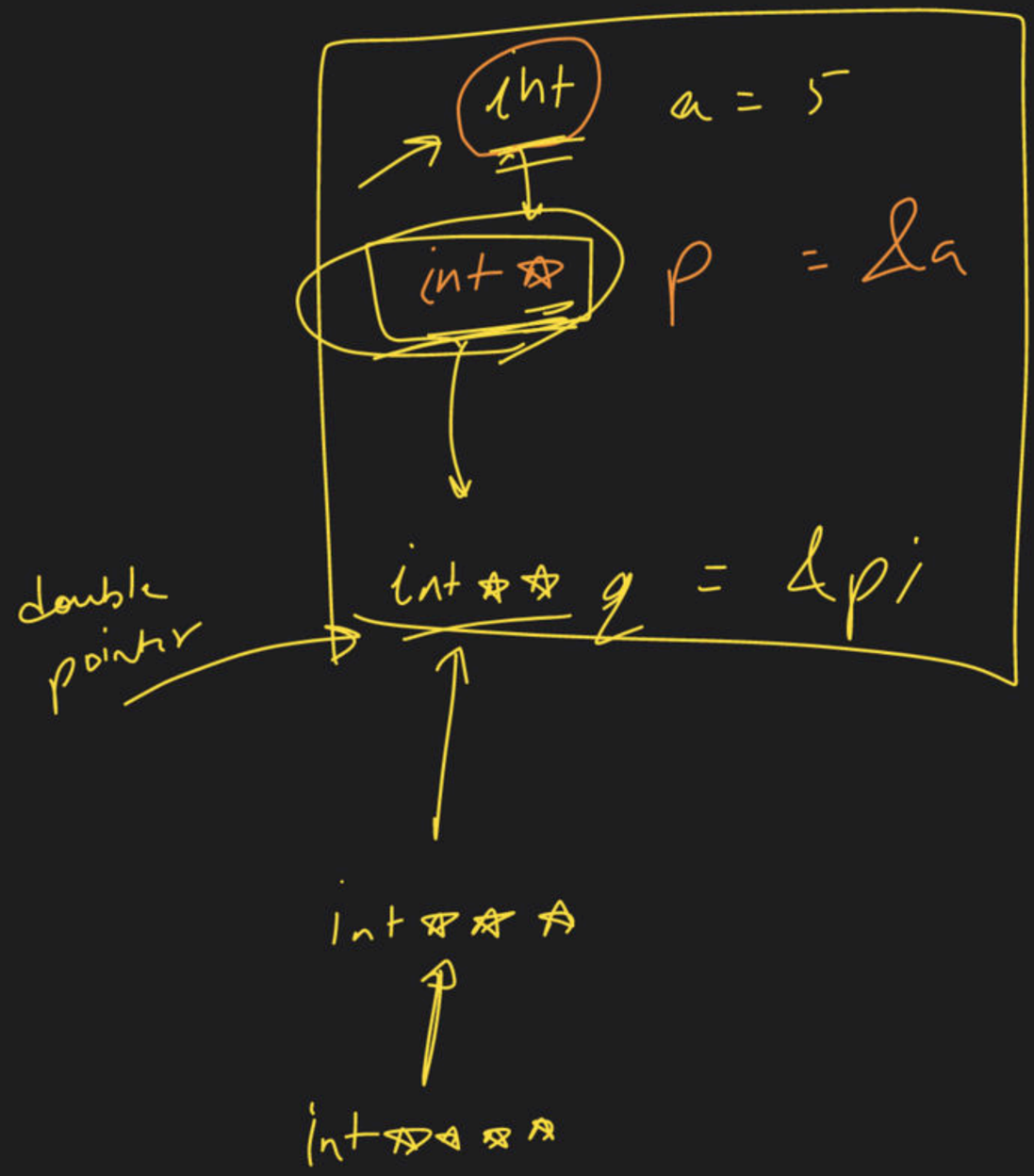
int *p = &a;



s.t

a → 104

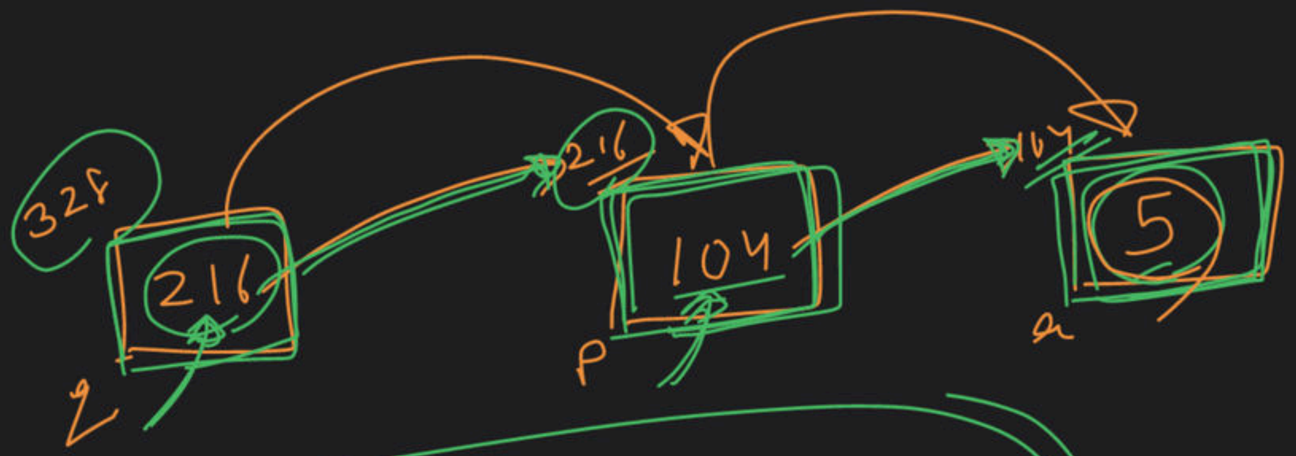
p → 216



char ch = 'd';

char * p = &ch;

min Break



int a = 5;

int * p = &a;

int ** q = &p;

p is a pointer to int data

q is a pointer to int * data

a → 5

&a → 104

p → 104

&p → 216

*p → 5

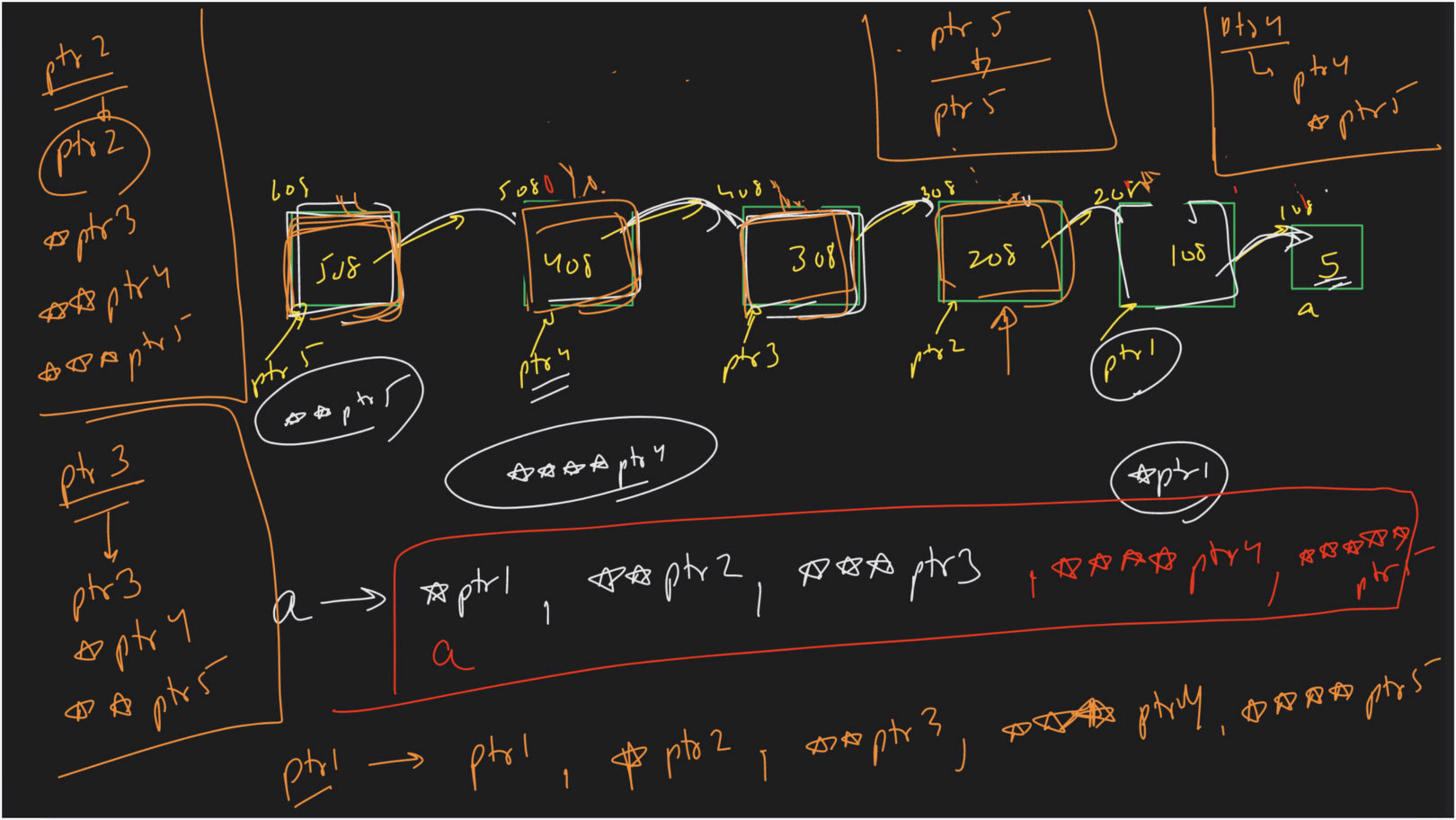
&q → 216

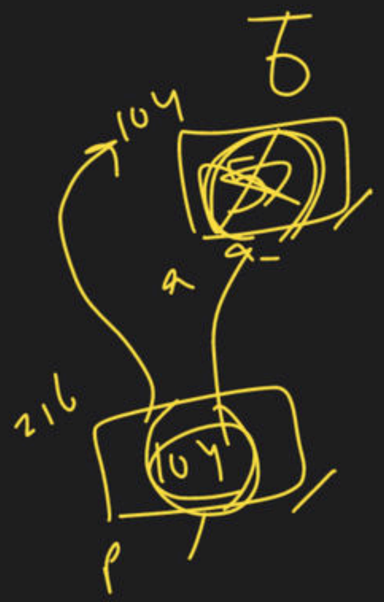
*q → 104

**q → 5

&q → 328

Confusion


ptr 2
ptr 2
ptr 3
ptr 4
ptr 5
60s
50s
40s
30s
20s
10s
5
a
ptr 5
ptr 5
ptr 4
ptr 3
ptr 2
ptr 1
ptr 5
ptr 4
ptr 4
ptr 3
ptr 5
ptr 3
ptr 3
ptr 4
ptr 5
a
ptr 1
ptr 1
ptr 1
ptr 2
ptr 3
ptr 4
ptr 5




```
main()
{
  int a = 5
  int * p = &a
```

print → a → 5
&p → 107
*p → 5

```
  fn1(p)
```

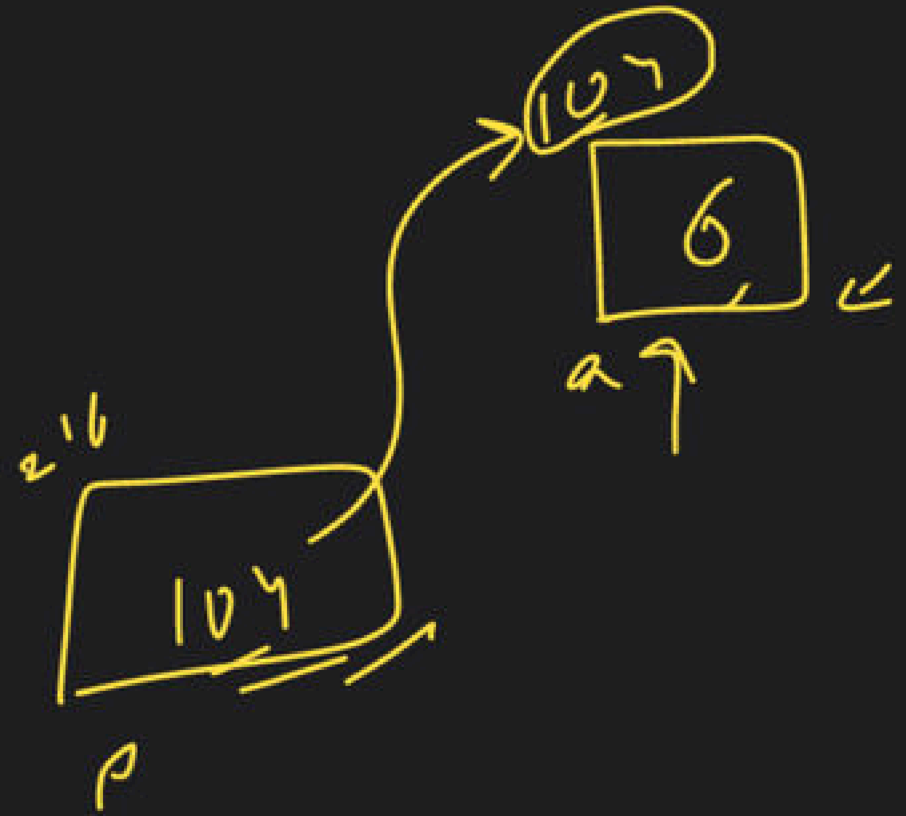
print → 6
p → 107
*p → 6

```
}
```

```
fn1 (int* p)
{//p = p+1
  *p = *p + 1;
}
```

*(104) = *(107) + 1
= 5 + 1

*(104) = 6




```
main()
{
    int a = 5;
    int* p = &a

    util(p)

    cout << a;   → 6
}
```

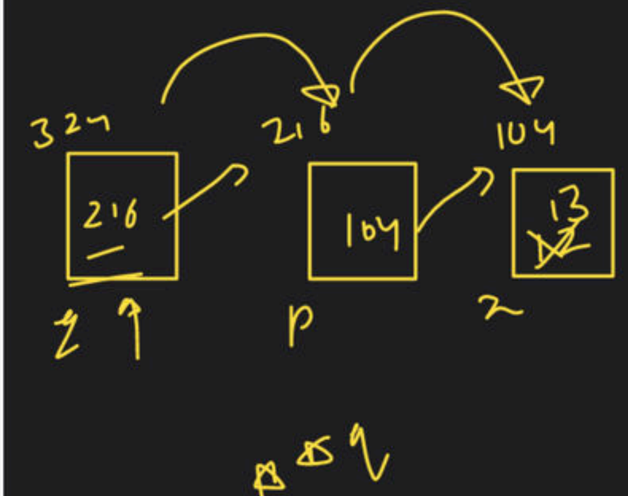
```
util(int* ptr)
{
    *ptr = *ptr + 1;
}
```

ptr = ptr +1

*(104) = *(104) +1

= 5+1

*(104) = 6




```
main()
{
    int x = 12;
    int *p = &x;
    int **z = &p;
    solve(z)
```

```
solve (int ** ptr)
{
    **ptr = **ptr + 1;
```

524 → 216 (ptr)

Value at n = Value at n + 1

= 12 + 1

= 13

13

Cout << x << endl;

}

}

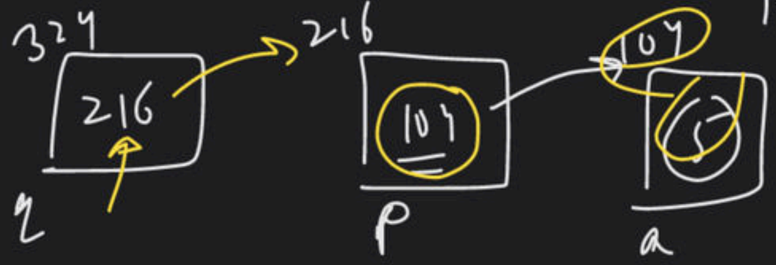
```
int  n = 12
int* p = &n
int** q = &p;
```

*p → value present at location stored in p

*q → value present at location stored in q

in *q = 104

*q → value present at location stored in q

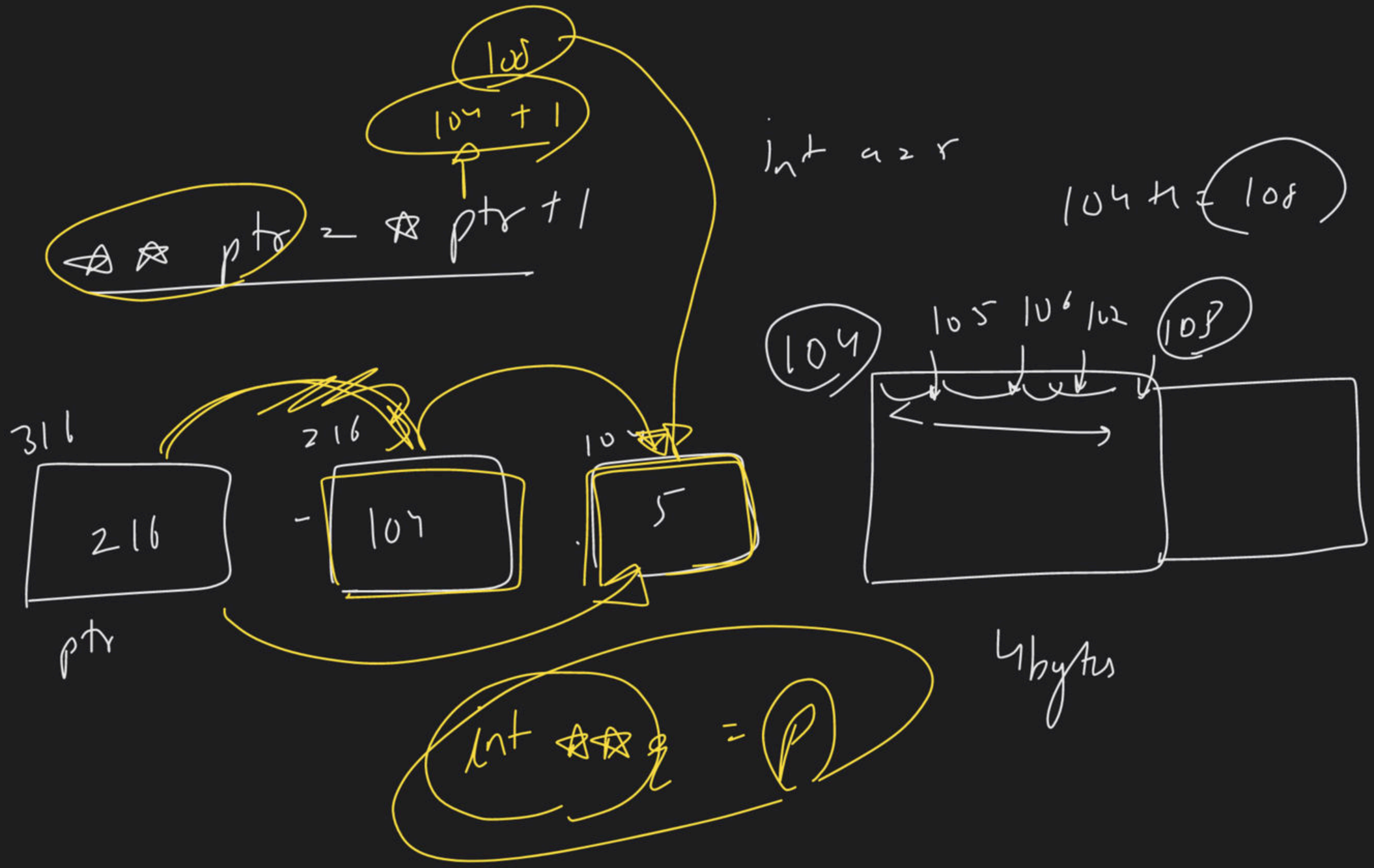


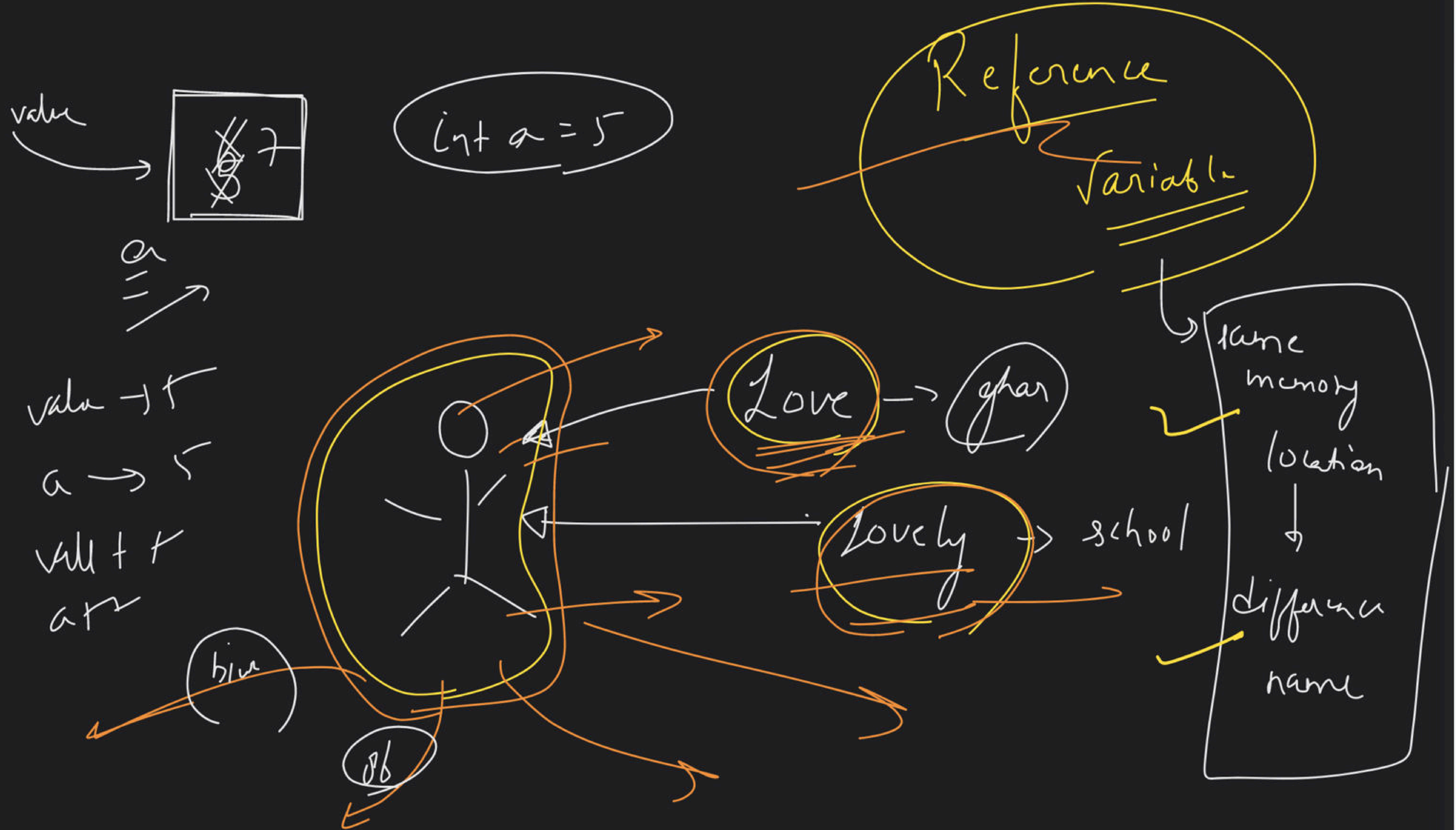
****ptr → Value present at location stored in ***ptr = 107

***ptr = 104 → value present at location stored in **ptr = 204

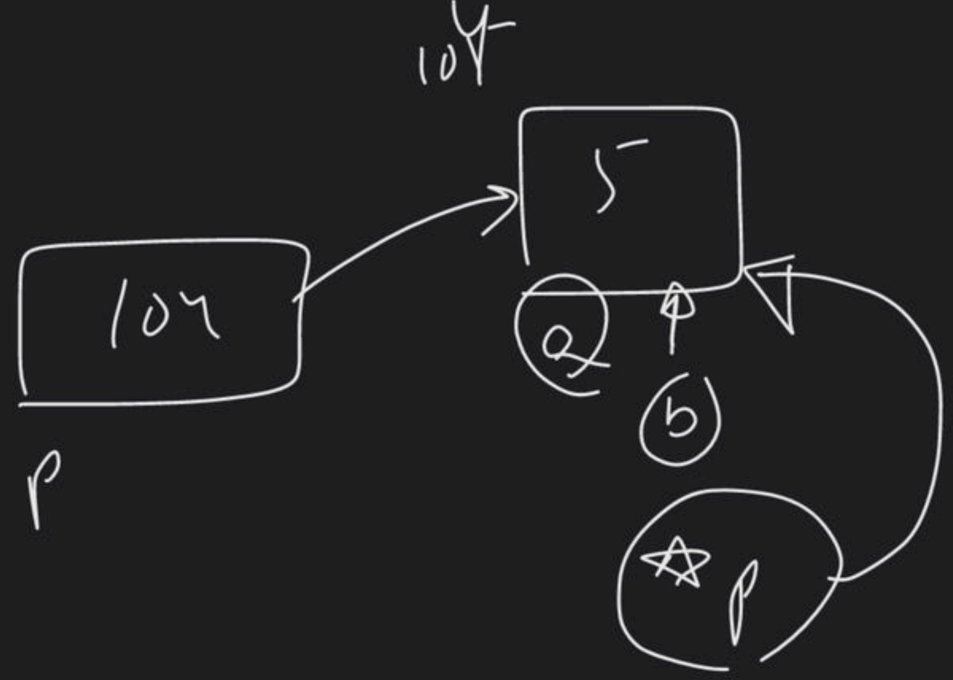
**ptr → value stored at location stored in *ptr = 307

*ptr = 307 → value stored at location stored in ptr


108
104 + 1
**ptr = *ptr + 1
int arr
104 = 108
104
105 106 102
108
316
216
216
104
5
ptr
4bytes
int **p = p



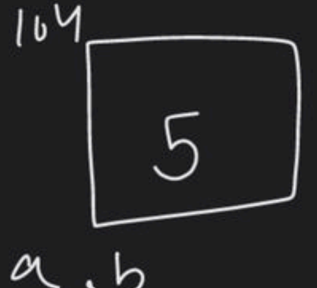
value
int a = 5
a
value → 5
a → 5
Reference
Variable
same
memory
location
different
name
Love
ghar
Lovely
school
86


104
5
104
a
b
*p
p

```
int a = 5;
```

```
int& b = a
```

b → is a reference variable & pointing to the same memory location of a



S.T

a ⟶ 104

b ⟶ 104

main()

{

int a = 5

int & b = a;

→ print a → 5

→ print b → 5

→ a++;

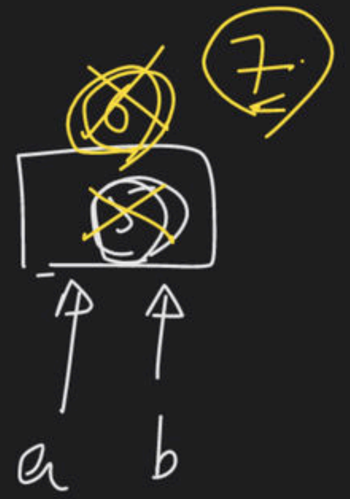
→ print a → 6

→ print b → 6

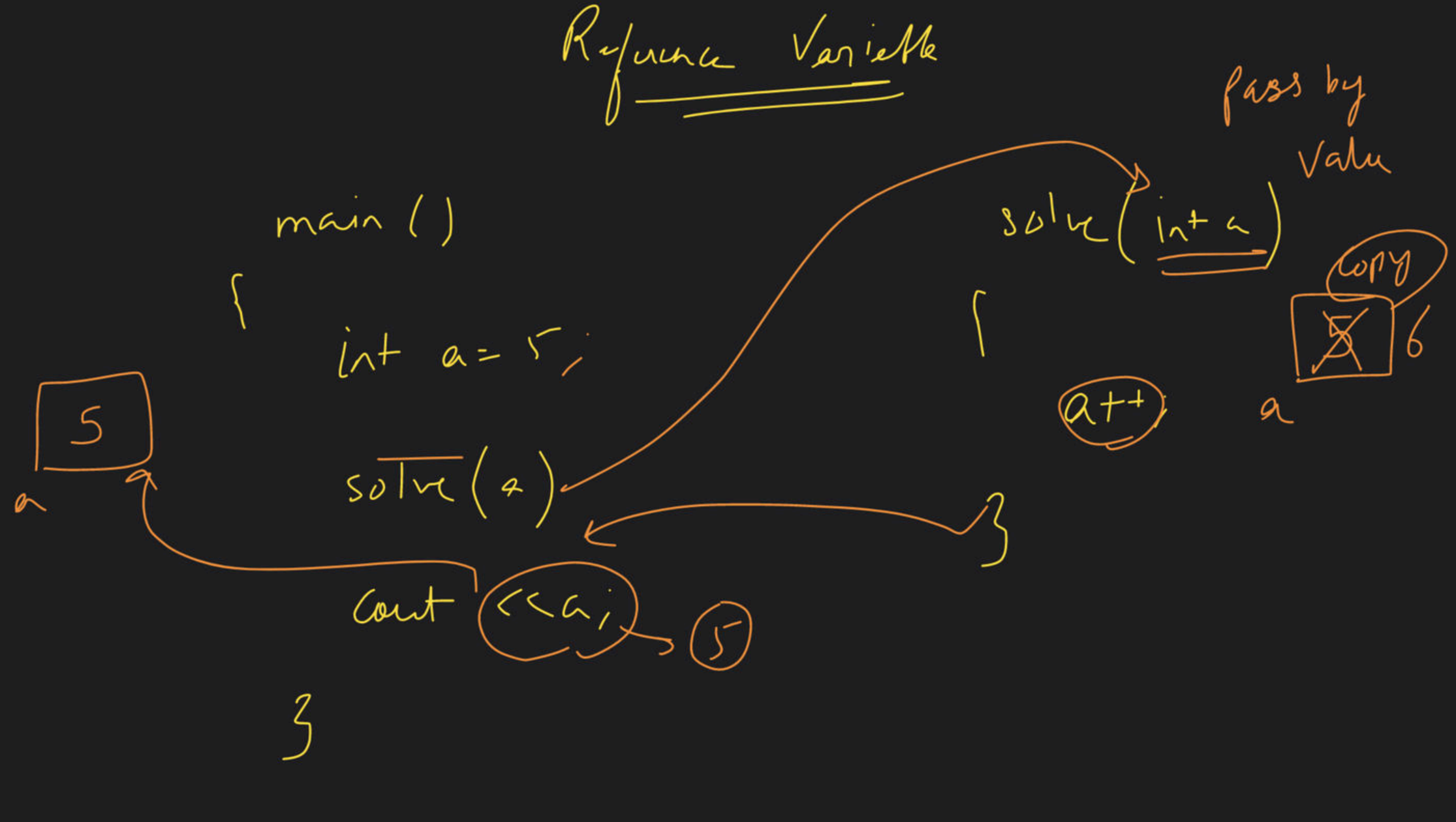
b++

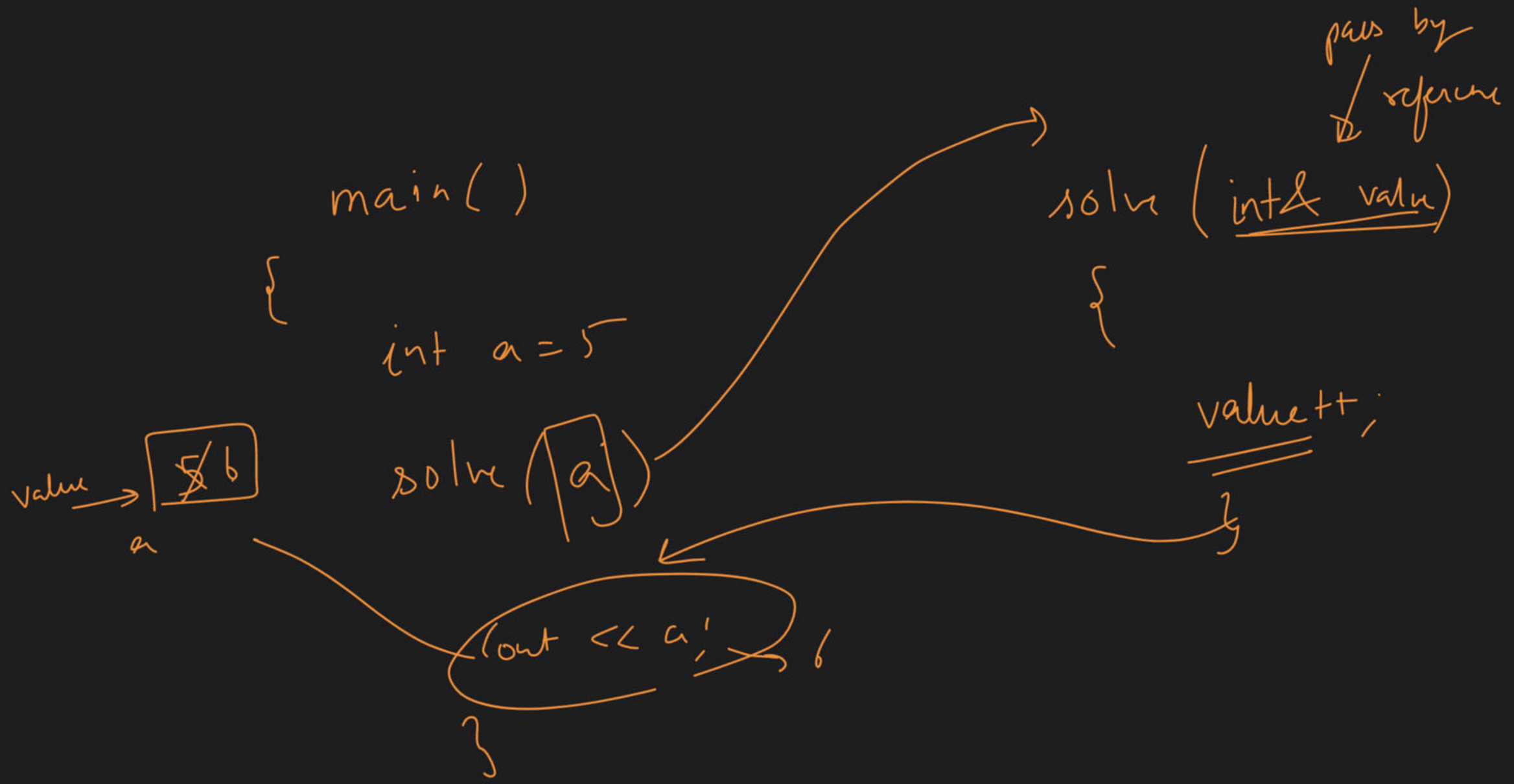
→ print a → 7

→ print b → 7



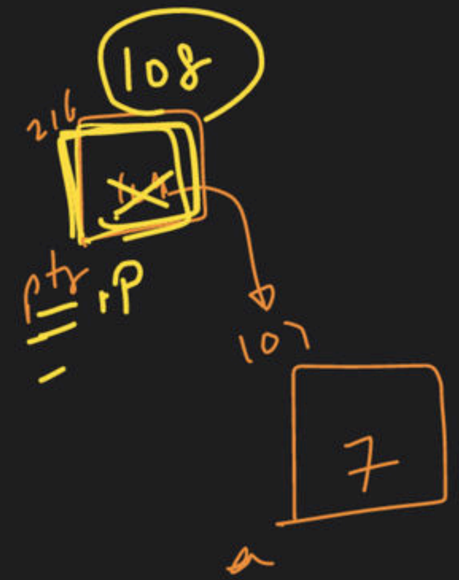
Reference Variable




pass by reference
main()
{
int a=5
solve(a)
}
solve(int& value)
{
value++;
}
value
a
5 6
cout << a;
6

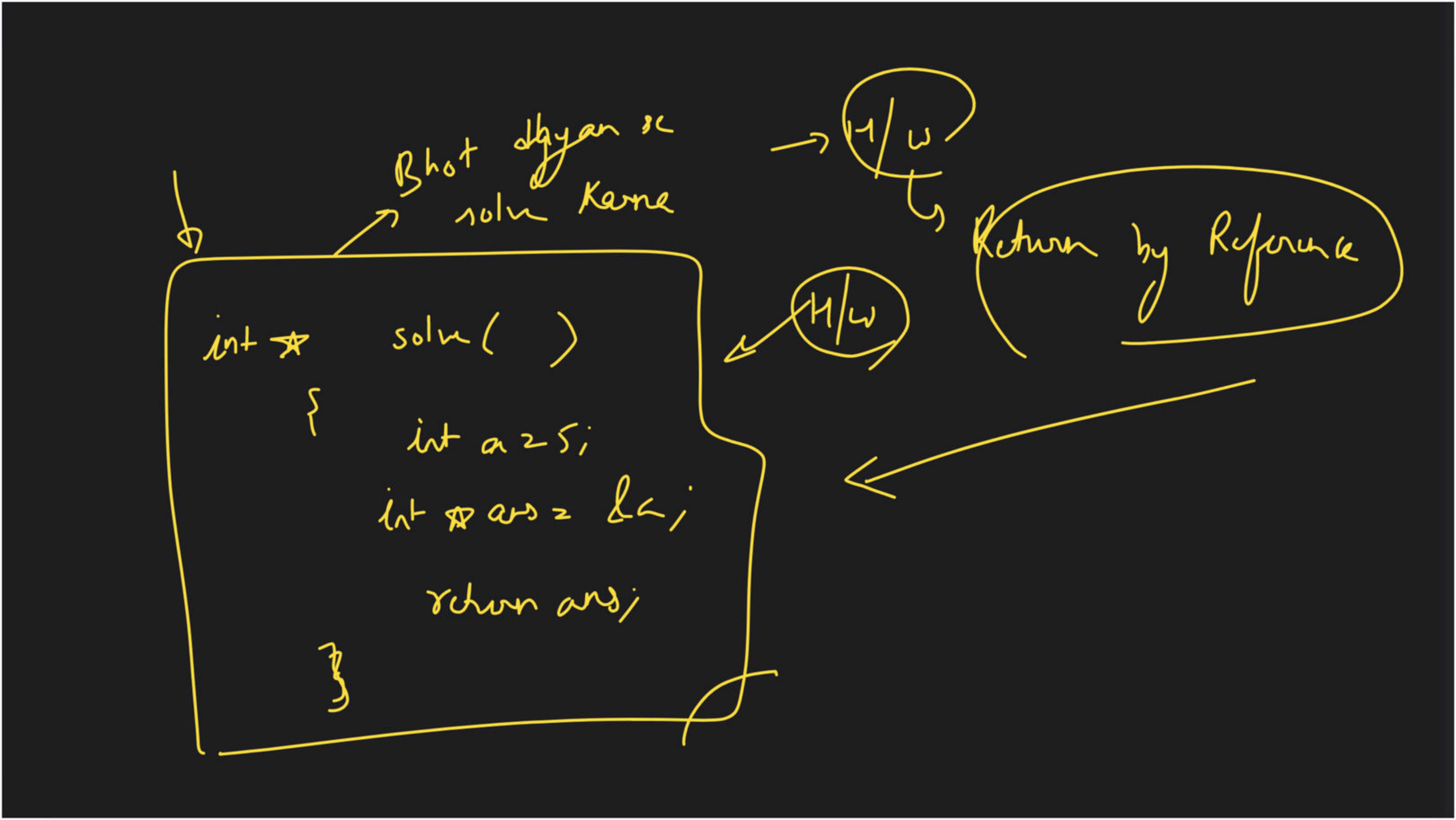

solve (Ax = b)

Pass by reference




```
main()
{
    int a = 7;
    int *ptr = &a
    print ptr → 104
    solve(ptr)
    print ptr → 108
}
```

```
solve(int *&p)
{
    p = p + 1;
}
```


Bhot dhyan se
solve Karna
H/W
Return by Reference
H/W
int * solve( )
{
int a = 5;
int * ans = &a;
return ans;
}