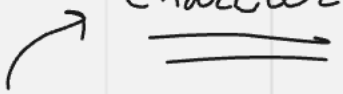
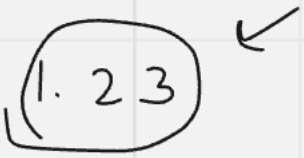
%d



%c



%f

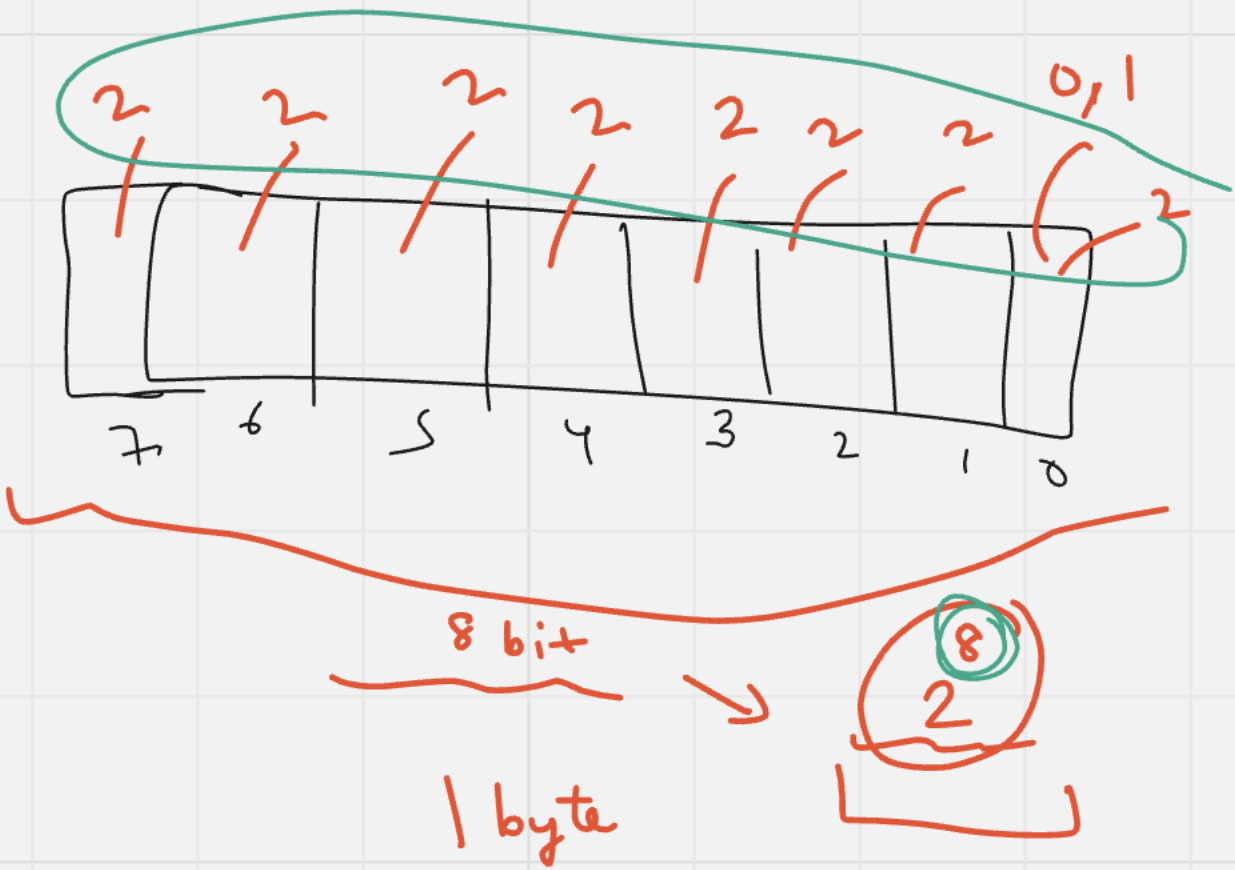
%d / %c / %f

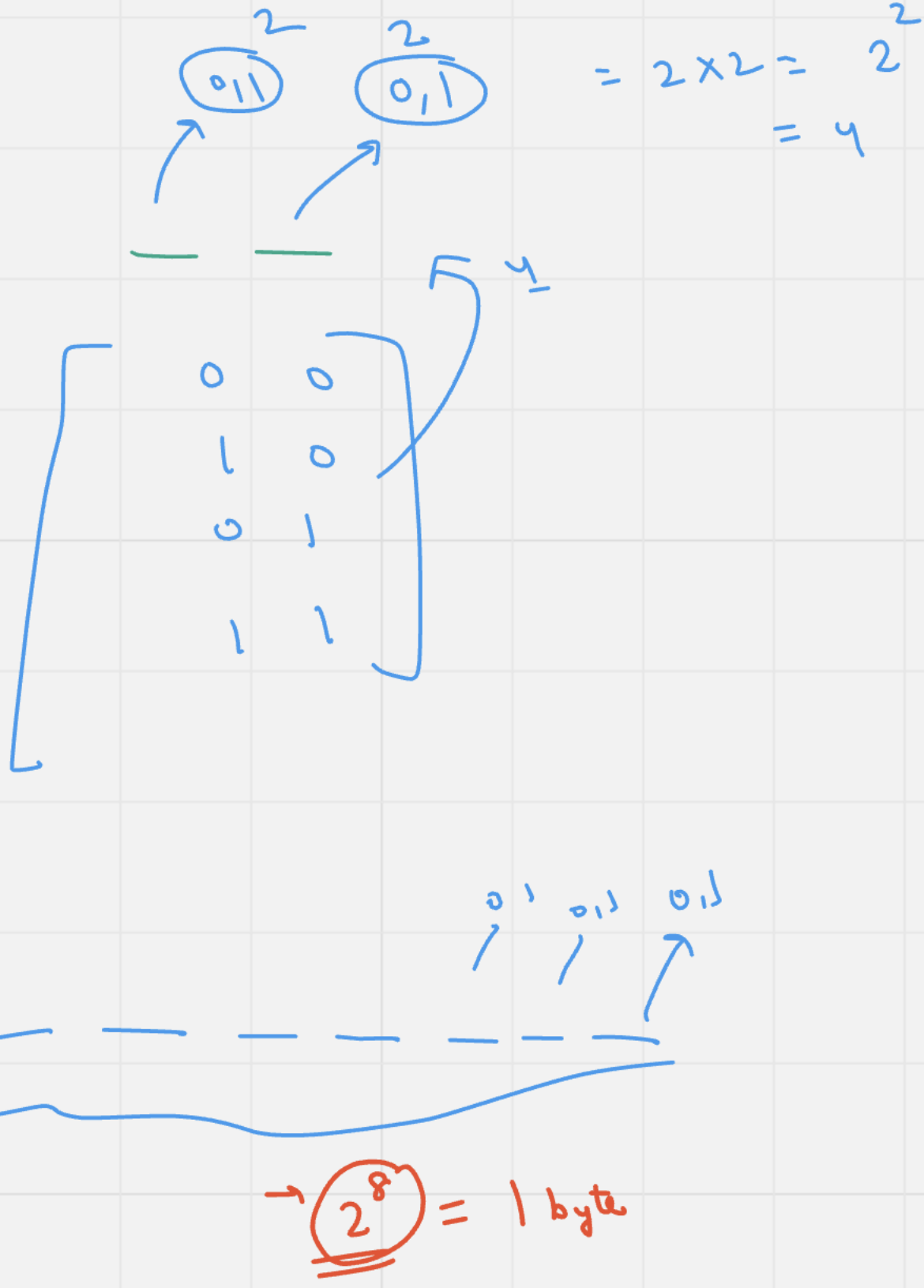
Size of int

i

byte

1 byte = 8 bit




2
2
0 1 1
0 1
= 2 x 2 = 2^2
= 4
4
0 0
1 0
0 1
1 1
0 1
0 1 1
0 1
2^8 = 1 byte

2 byte $\equiv 2^{16}$

4 byte $= 2^{32}$

int [+ve | -ve] 4 byte

range of int

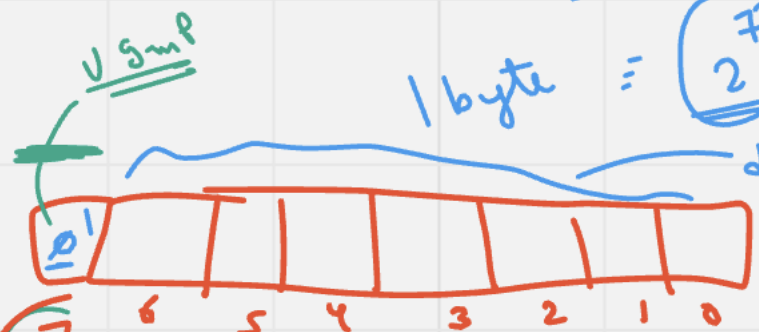
4 byte

min — max

(8) 2

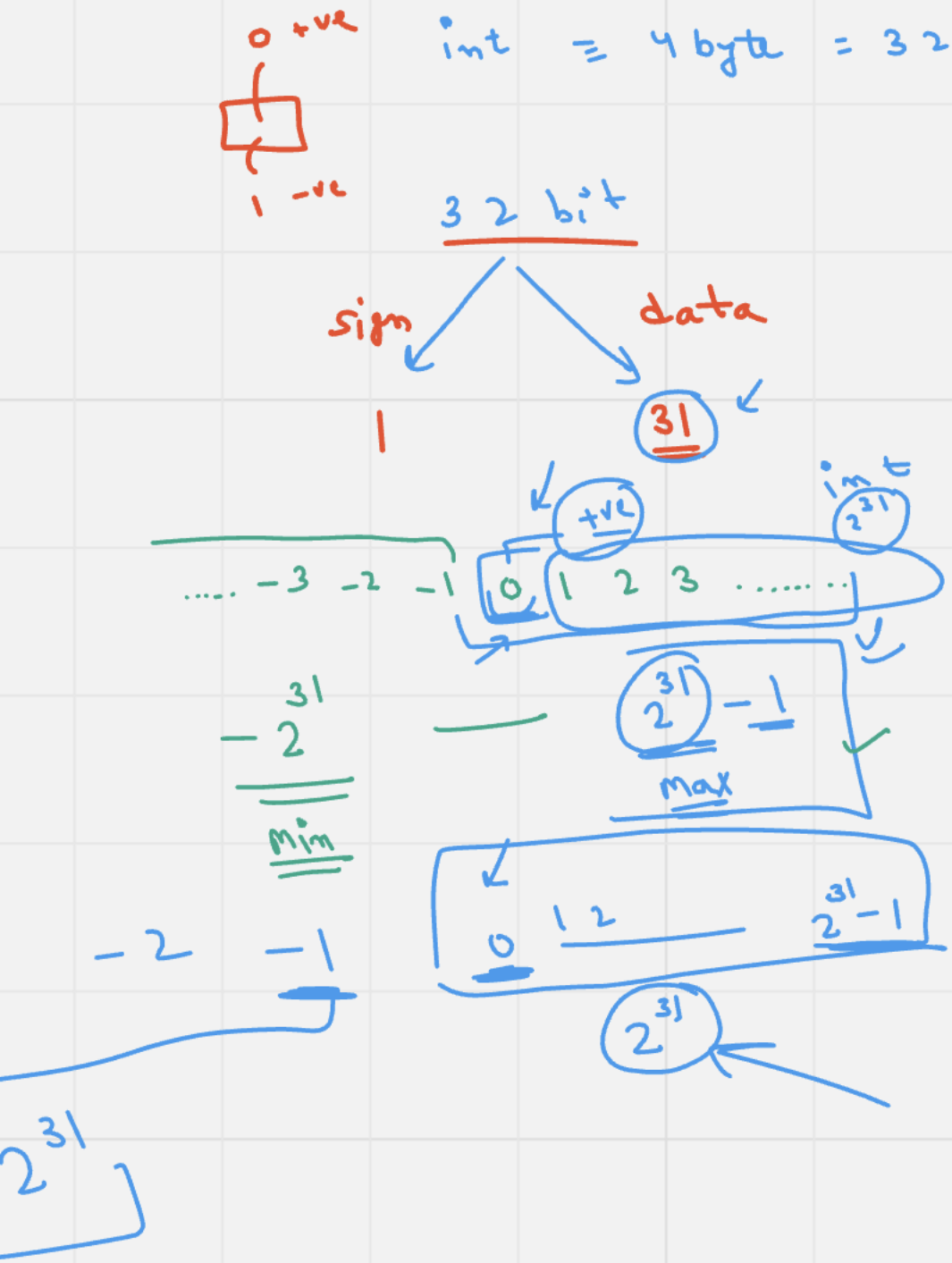
1 byte $\equiv 2^{7}$

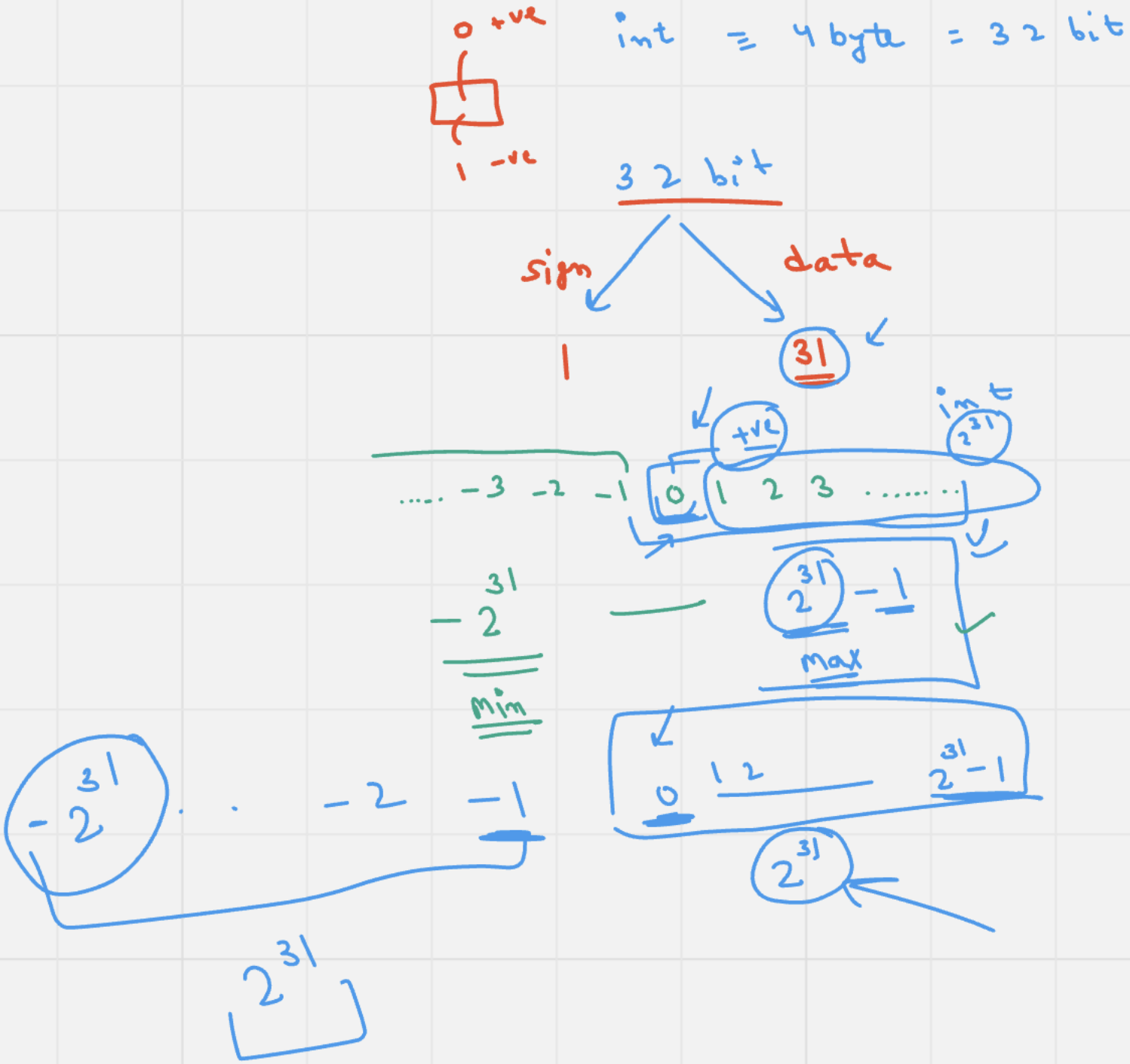
data



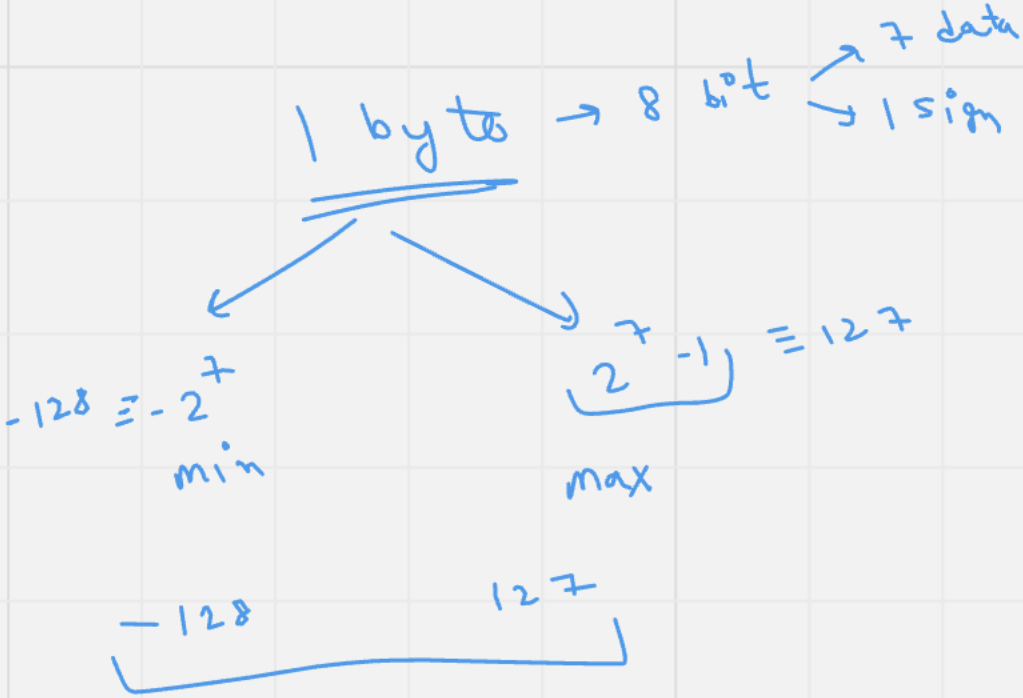
Num: +ve → 0, -ve → 1

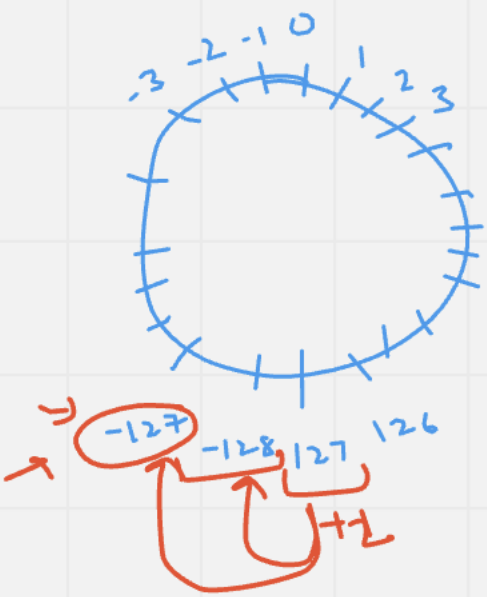
sign | Remain (7)

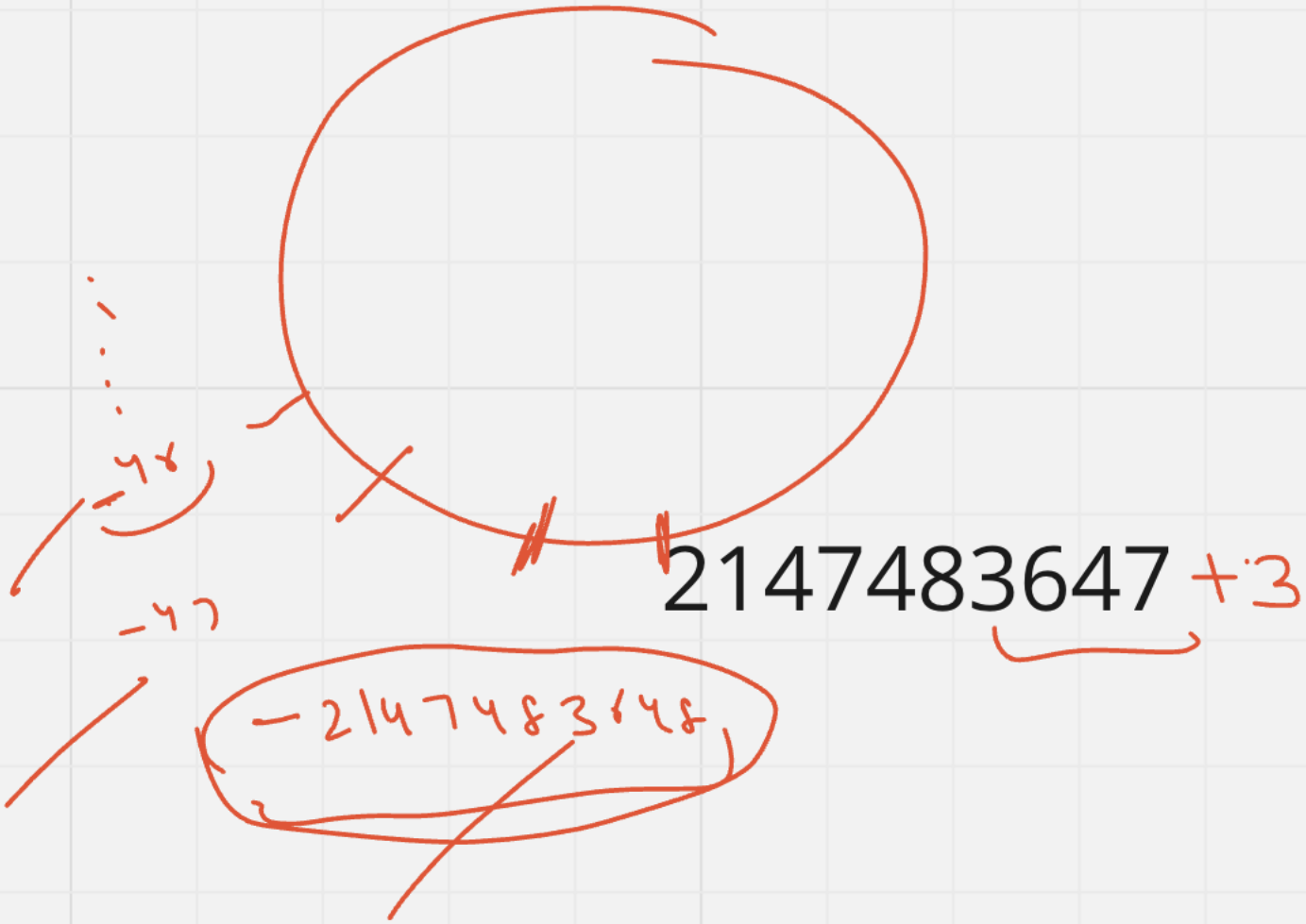

0 +ve
1 -ve
int ≡ 4 byte = 32 bit
32 bit
sign
data
1
31
+ve
int
2^{31}
..... -3 -2 -1
0 1 2 3 ....
-2^{31}
min
$2^{31}-1$
max
-2 -1
0 1 2
$2^{31}-1$
2^{31}
2^{31}


0 +ve
1 -ve
int = 4 byte = 32 bit
32 bit
sign
data
1
31
+ve
int
2^{31}
..... -3 -2 -1
0 1 2 3 ....
-2^{31}
min
$2^{31}-1$
max
0 1 2
$2^{31}-1$
-2^{31}
-2 -1
2^{31}

2147483647


1 byte → 8 bit
7 data
1 sign
-128 ≡ -2^7
min
2^7 -1 ≡ 127
max
-128
127


-3 -2 -1 0 1 2 3
-127
-128
127
126
+1



int = 4 byte

↓

Long = 8 byte

float = 4 byte

double = 8 byte

Operators in C

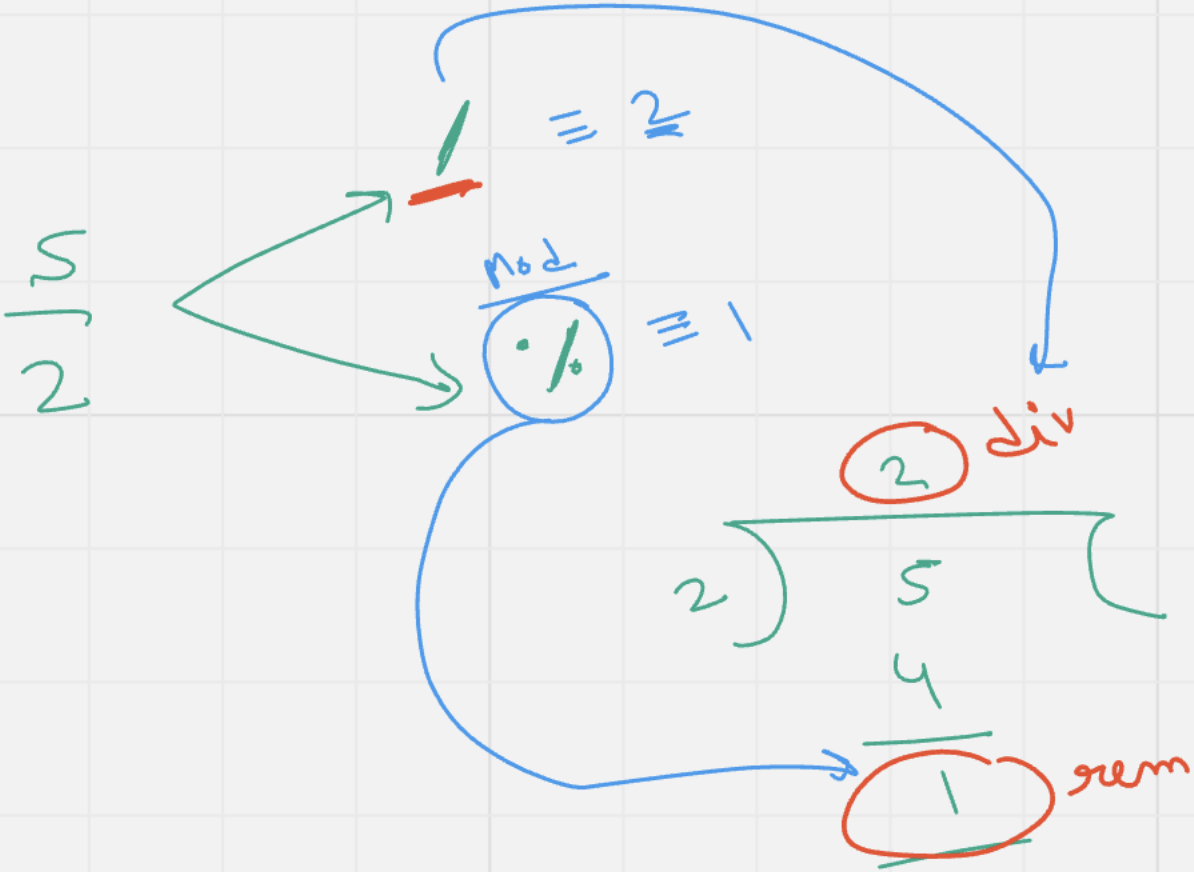
Arithmatic

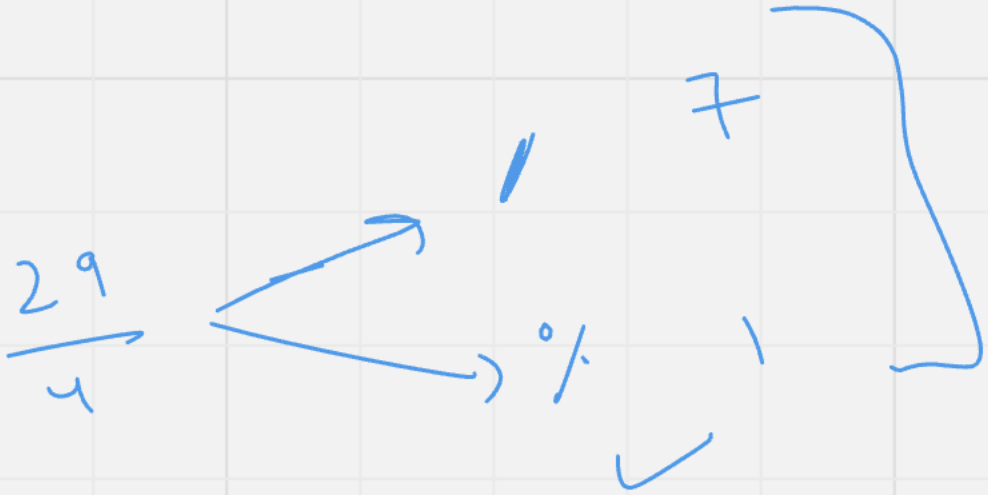
imp

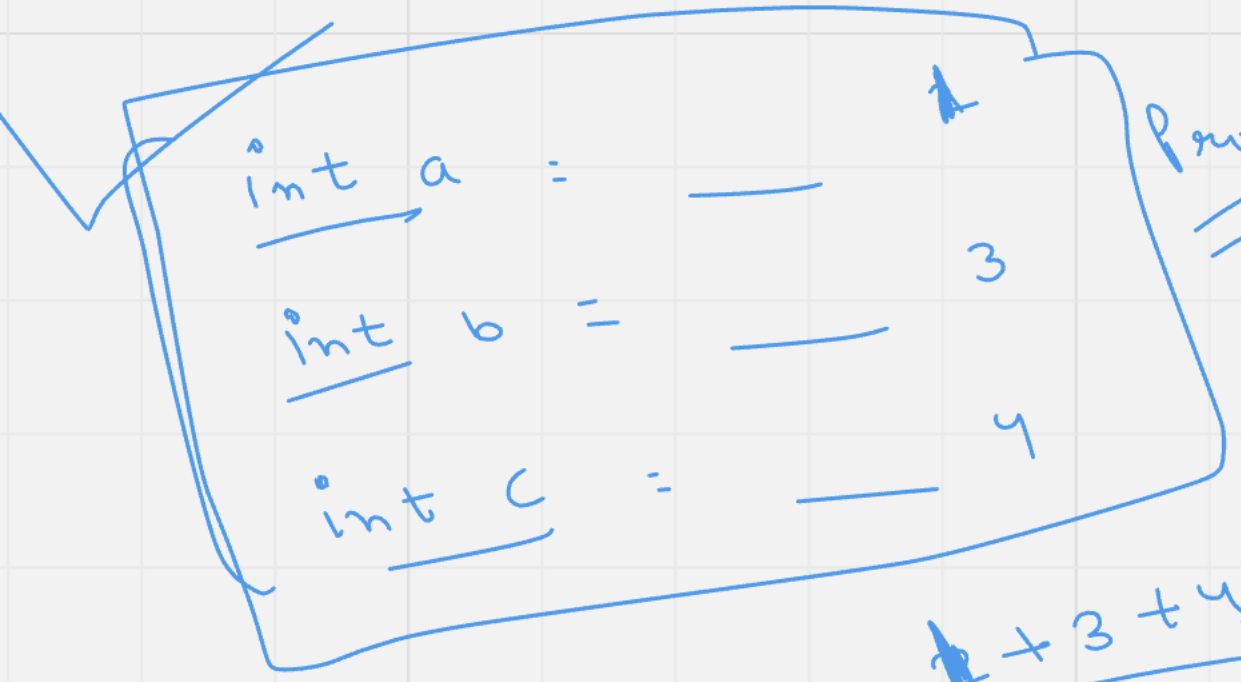
+ — *

/ %

add sub mub div rem


5
2
/
≡ 2
mod
%
≡ 1
2
div
2
5
4
1
rem


7
29
4
/
%
1



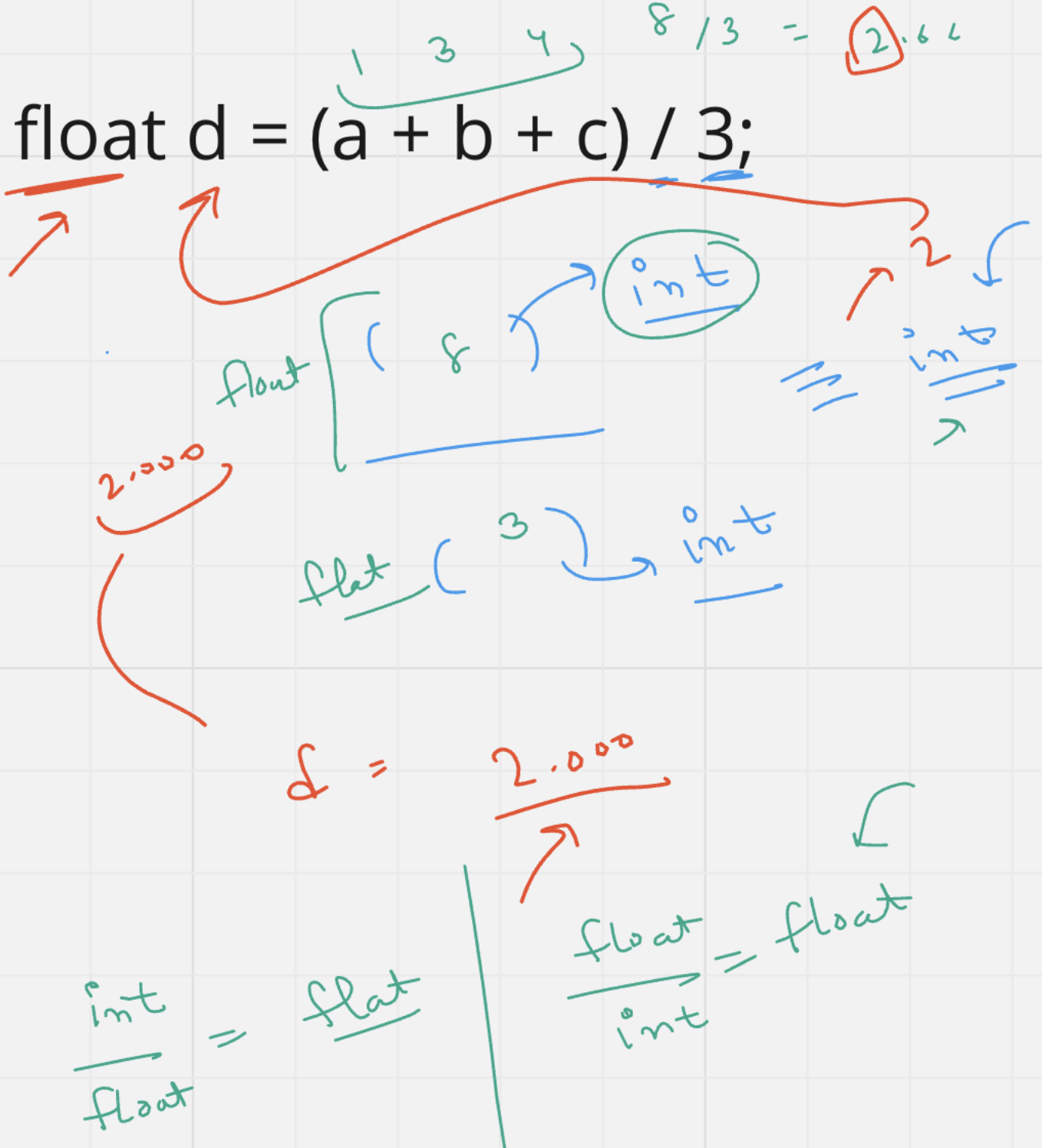
Problem

$\frac{1+3+4}{3} = \frac{8}{3}$ 2.66

correct $\frac{9}{3}$ 3.0

float d

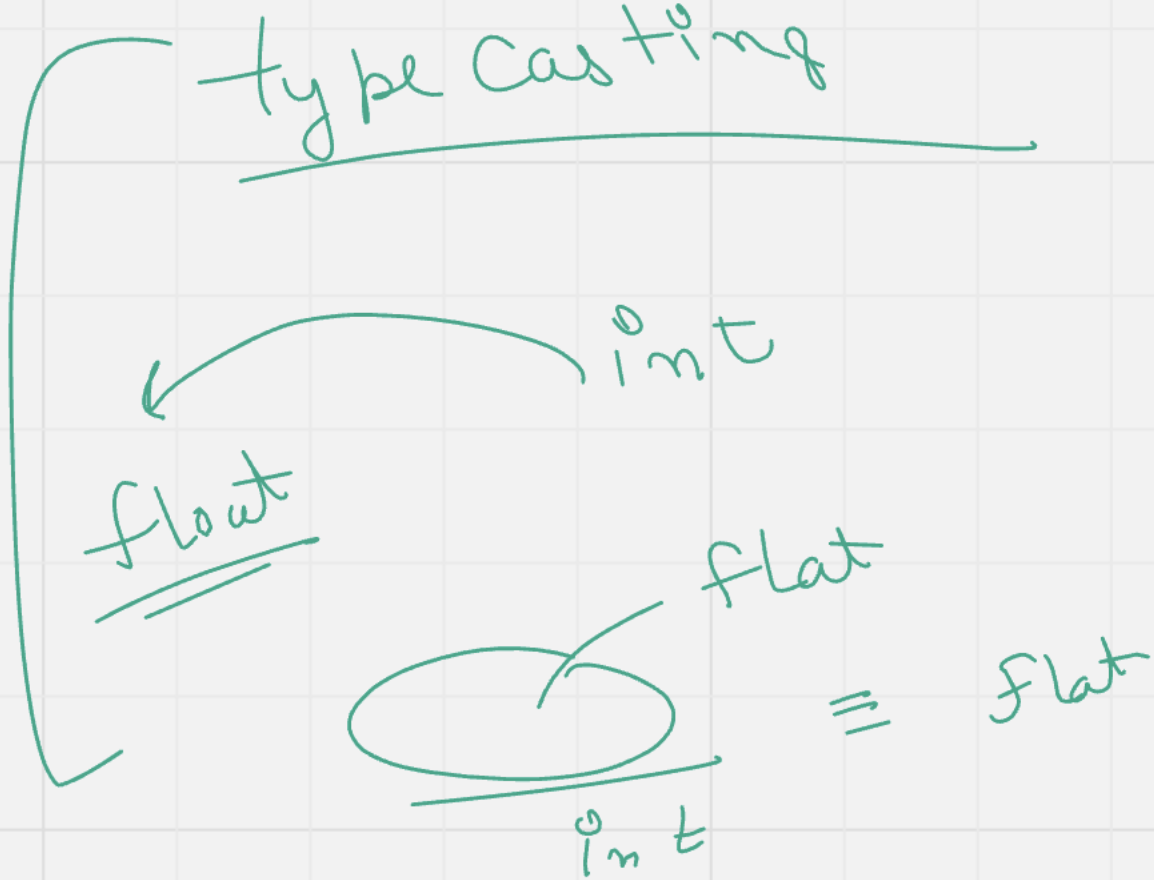
average


float d = (a + b + c) / 3;
1 3 4
8 / 3 = 2.66
float (8) int
2
int
2.000
float (3) int
d = 2.000
int / float = float
float / int = float

float / float ⇒ float

$$\frac{a+b+c}{3.0} \equiv$$

type Casting



≡ flat

↓

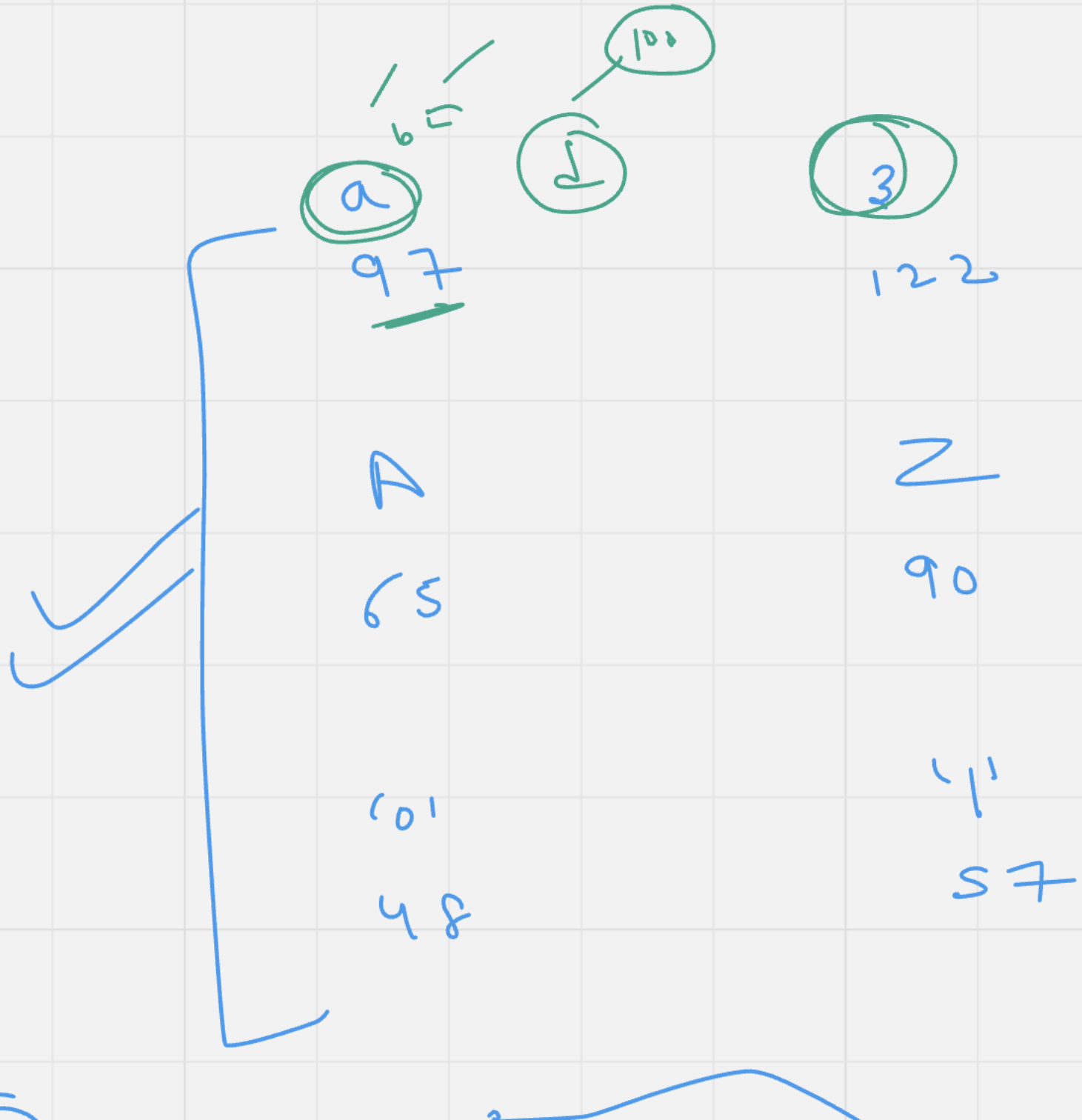
Each chara ⟶ int

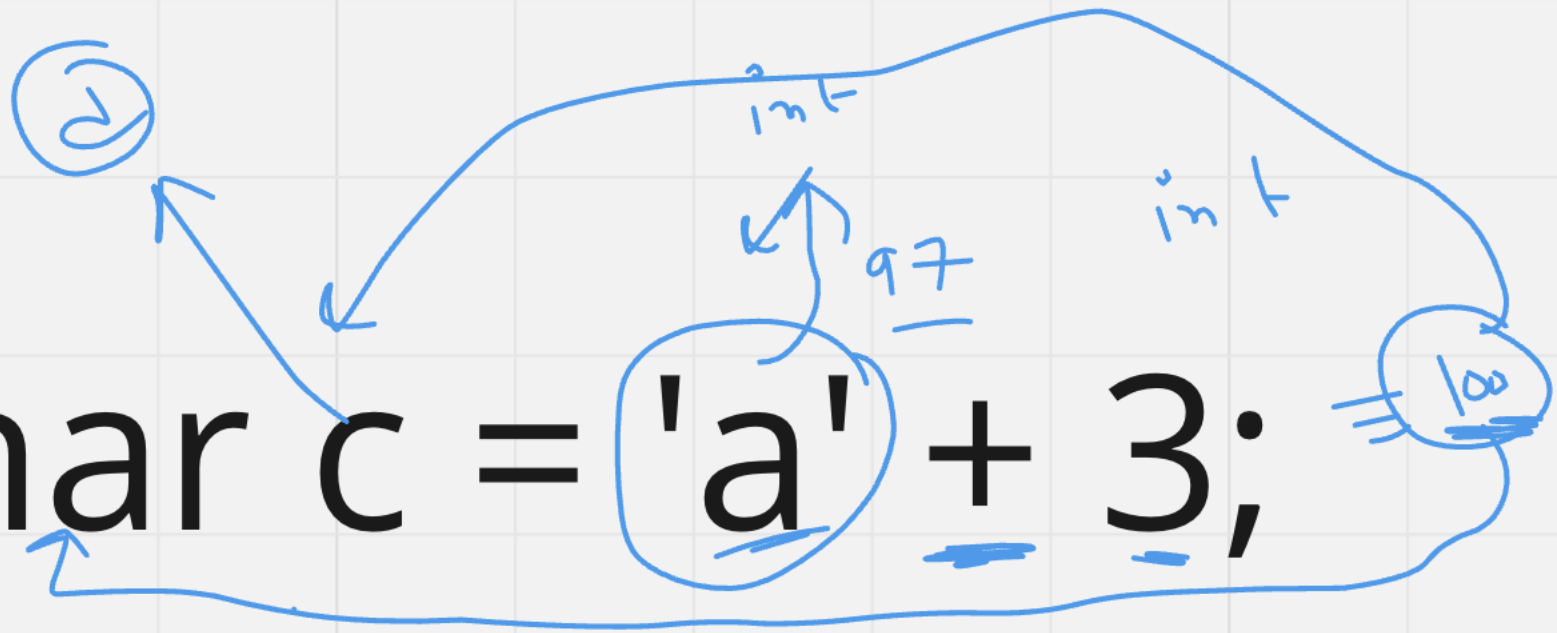
Ascii

ASCII table

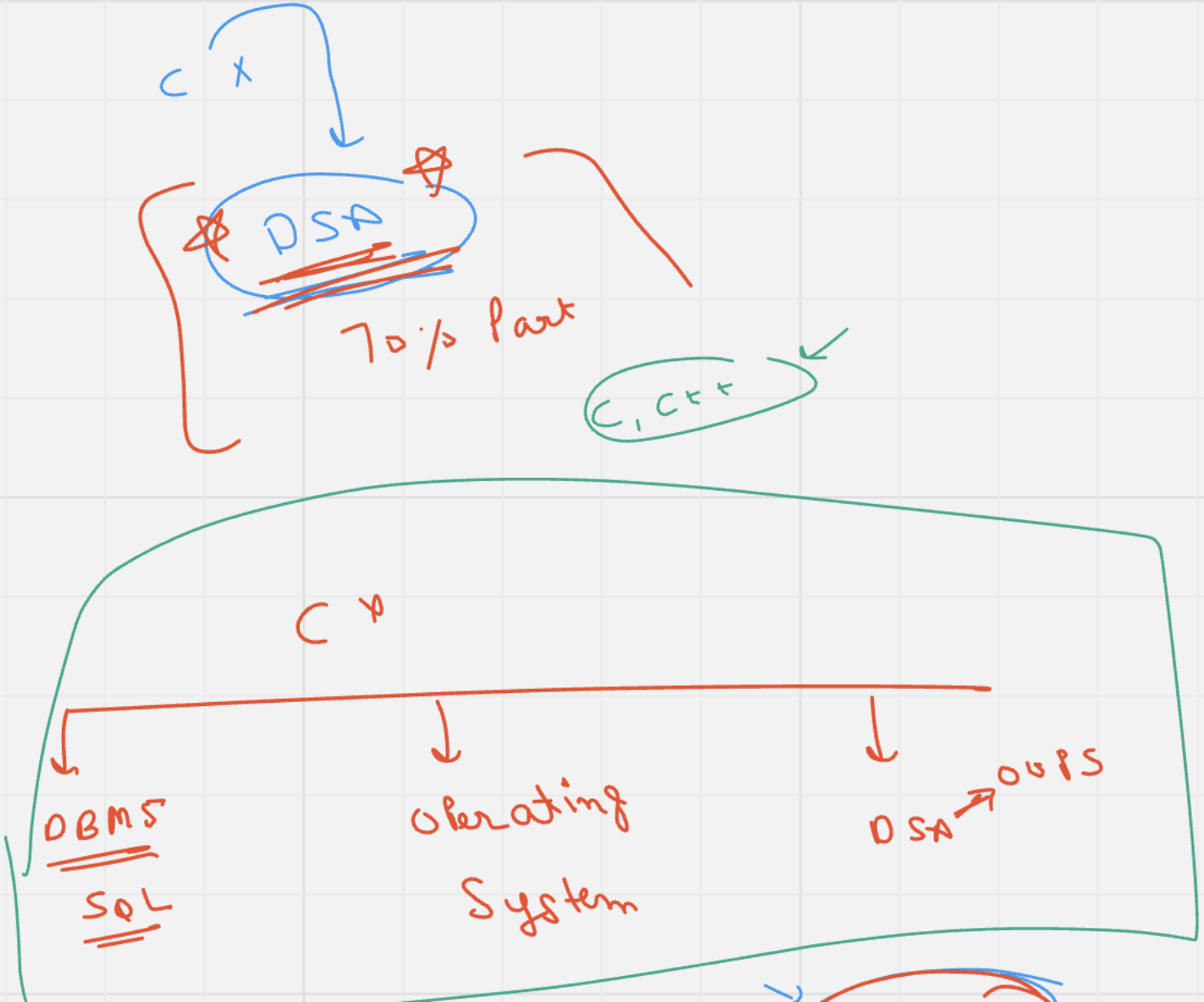
ASCII TABLE

Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char
0	0	[NULL]	32	20	[SPACE]	64	40	@	96	60	`
1	1	[START OF HEADING]	33	21	!	65	41	A	97	61	a
2	2	[START OF TEXT]	34	22	"	66	42	B	98	62	b
3	3	[END OF TEXT]	35	23	#	67	43	C	99	63	c
4	4	[END OF TRANSMISSION]	36	24	$	68	44	D	100	64	d
5	5	[ENQUIRY]	37	25	%	69	45	E	101	65	e
6	6	[ACKNOWLEDGE]	38	26	&	70	46	F	102	66	f
7	7	[BELL]	39	27	'	71	47	G	103	67	g
8	8	[BACKSPACE]	40	28	(	72	48	H	104	68	h
9	9	[HORIZONTAL TAB]	41	29	)	73	49	I	105	69	i
10	A	[LINE FEED]	42	2A	*	74	4A	J	106	6A	j
11	B	[VERTICAL TAB]	43	2B	+	75	4B	K	107	6B	k
12	C	[FORM FEED]	44	2C	,	76	4C	L	108	6C	l
13	D	[CARRIAGE RETURN]	45	2D	-	77	4D	M	109	6D	m
14	E	[SHIFT OUT]	46	2E	.	78	4E	N	110	6E	n
15	F	[SHIFT IN]	47	2F	/	79	4F	O	111	6F	o
16	10	[DATA LINK ESCAPE]	48	30	0	80	50	P	112	70	p
17	11	[DEVICE CONTROL 1]	49	31	1	81	51	Q	113	71	q
18	12	[DEVICE CONTROL 2]	50	32	2	82	52	R	114	72	r
19	13	[DEVICE CONTROL 3]	51	33	3	83	53	S	115	73	s
20	14	[DEVICE CONTROL 4]	52	34	4	84	54	T	116	74	t
21	15	[NEGATIVE ACKNOWLEDGE]	53	35	5	85	55	U	117	75	u
22	16	[SYNCHRONOUS IDLE]	54	36	6	86	56	V	118	76	v
23	17	[END OF TRANS. BLOCK]	55	37	7	87	57	W	119	77	w
24	18	[CANCEL]	56	38	8	88	58	X	120	78	x
25	19	[END OF MEDIUM]	57	39	9	89	59	Y	121	79	y
26	1A	[SUBSTITUTE]	58	3A	:	90	5A	Z	122	7A	z
27	1B	[ESCAPE]	59	3B	;	91	5B	[	123	7B	{
28	1C	[FILE SEPARATOR]	60	3C	<	92	5C	\	124	7C	|
29	1D	[GROUP SEPARATOR]	61	3D	=	93	5D	]	125	7D	}
30	1E	[RECORD SEPARATOR]	62	3E	>	94	5E	^	126	7E	~
31	1F	[UNIT SEPARATOR]	63	3F	?	95	5F	_	127	7F	[DEL]


a
97
A
65
Z
90
'0'
48
'1'
57



```
char c = 'a' + 3;
print("%c", c);
```


C x
DSA
70% Part
C, C++
C++
DBMS
SQL
Operating
System
DSA
OOPS