

Subtraction of two -ve numbers in binary:-

When Both Number is negative there are two cases

- ① with overflow ② without overflow

② without overflow data

e.g

$$\begin{array}{r} -2 \rightarrow -10 \\ -1 \rightarrow -01 \\ \hline -3 \quad \quad -11 \end{array}$$

to represent sign.

~~data bit~~
initiate one sign bit so

no. is

	sign bit		data		1's Comp.	
	0	1	0		101	
	0	0	1		110	
	<hr/>					

$$\begin{array}{r} 101 \\ 110 \\ \hline 011 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 1100 \\ \hline \end{array}$$

means
no. is negative

so

-(1's Complement of Result)

$$-(11)$$

① with overflow data

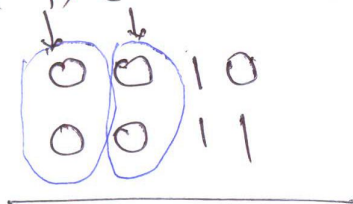
e.g

$$\begin{array}{r} -2 \quad -10 \\ -3 \quad -11 \\ \hline -5 \quad 101 \end{array}$$

↓
overflow

so to overcome this overflow we use one extra bit for the overflow then here we increase two more bits for (overflow + sign) bit

Now, (for sign) (for overflow)



1's comp.

1101

1's comp.

1100

11001

→ 1

11010

represents
-ve number

→ result

so take

ones complement again

— (1's complement of result)

— (101) Ans

Note:-

In general, if we take two more bit places at the MSB side then we don't required to pay any attention regarding ~~of~~ above mentioned two cases, i.e. take two more bit in MSB every time.