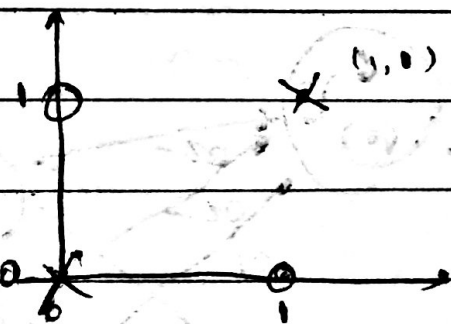


That was forward propagation
because we got from i/p to o/p.

Neural Network learns its own features.

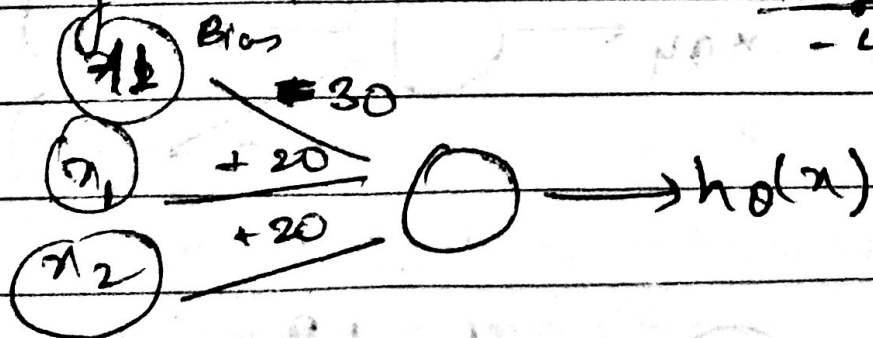
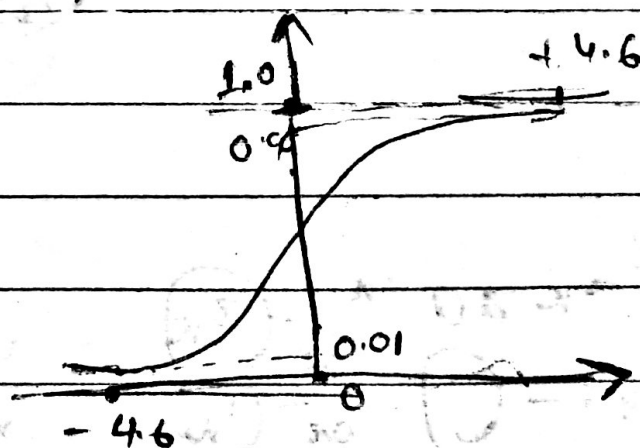
x_1, x_2 are binary
 $y = x_1 \oplus x_2$ XOR



Simple example: AND

$x_1, x_2 \in \{0, 1\}$

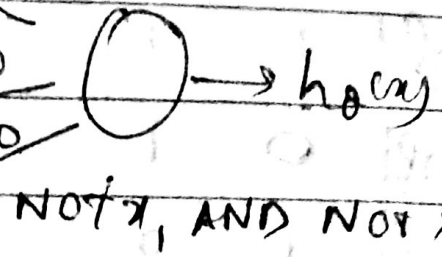
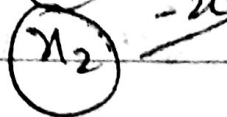
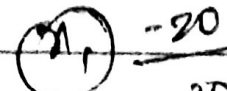
$y = x_1 \text{ AND } x_2$



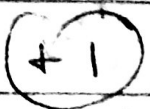
$$h_0(x) = g(-30 + 20x_1 + 20x_2)$$

x_1	x_2	$h_0(x)$
0	0	$g(-30) \approx 0$
0	1	$g(-10) \approx 0$
1	0	$g(-10) \approx 0$
1	1	$g(10) \approx 1$

x_1	x_2	$h_0(x)$
0	0	0
0	1	1
1	0	1
1	1	1



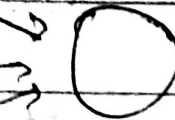
NOT x_1 AND NOT x_2



-30

20

20



x_1 AND x_2



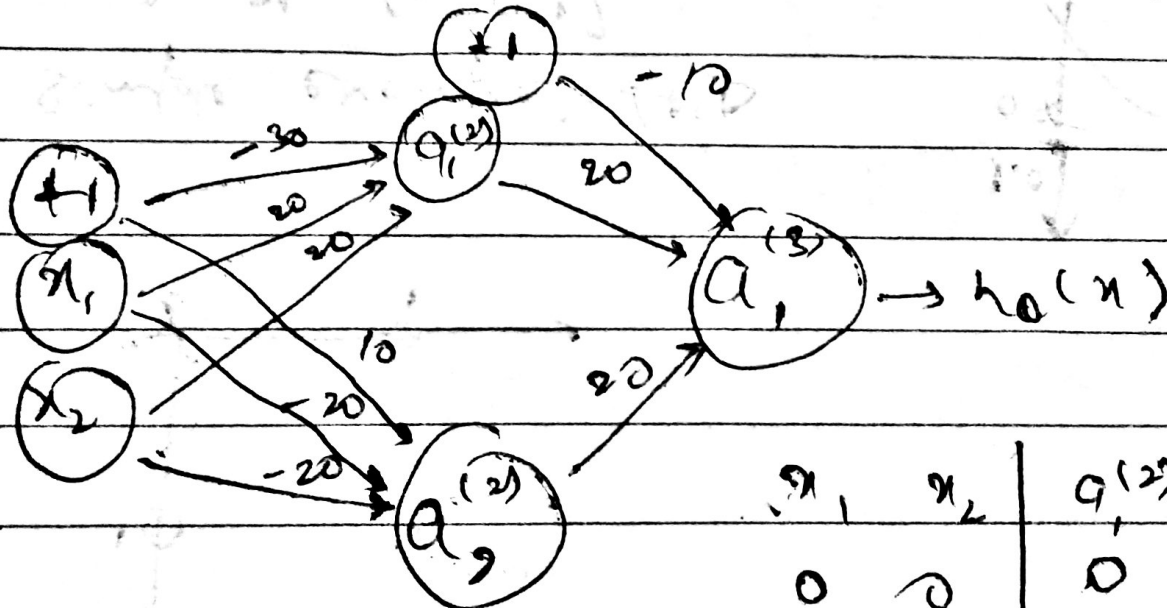
-10

20

20



x_1 OR x_2



x_1	x_2	$q_1^{(2)}$	$q_2^{(2)}$	$h_0^{(2)}$
0	0	0	1	1
0	1	0	0	0
1	0	0	0	0
1	1	1	0	1