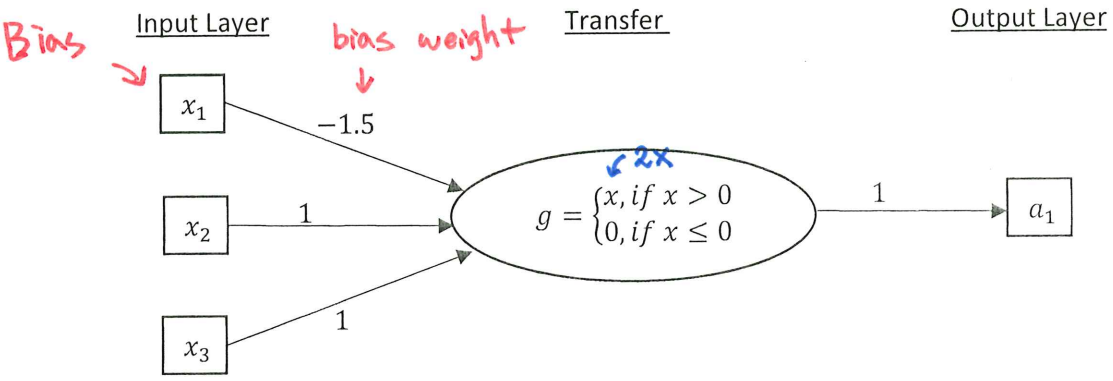
Evaluate the following perceptron networks with given inputs($x_1, x_2, x_3, \ldots$), weights($w_{i,j}$: weight from i to j), and activation functions(ramp or sigmoid).

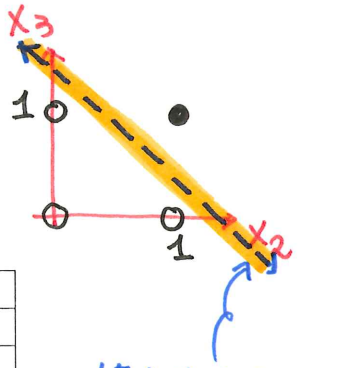
Example 1)



Sample Input Data

AND

x_1	x_2	x_3	Output
1 -1.5	0	0	0
1 -1.5	0	1 1	0
1 -1.5	1 1	0	0
1 -1.5	1 1	1 1	0.5 → 1

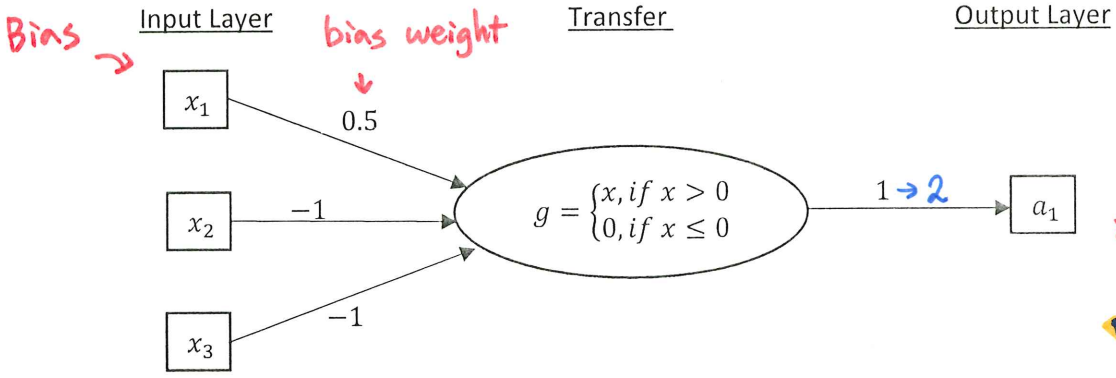


$-1.5 + x_2 + x_3 = 0$

$\Rightarrow -1.5 + x + y = 0$

$y = -x + 1.5$

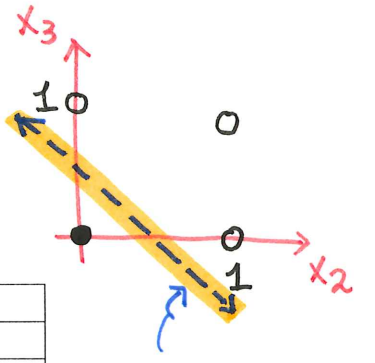
Example 2)



Sample Input Data

NOR

x_1	x_2	x_3	Output
1 +0.5	0	0	0.5 → 1
1 +0.5	0	1 -1	0
1 +0.5	1 -1	0	0
1 +0.5	1 -1	1 -1	0

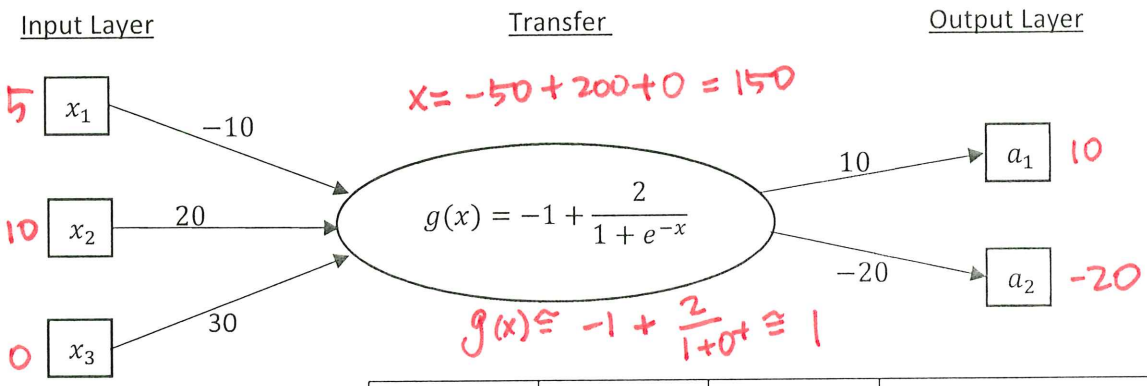


$0.5 - x_2 - x_3 = 0$

$\Rightarrow 0.5 - x - y = 0$

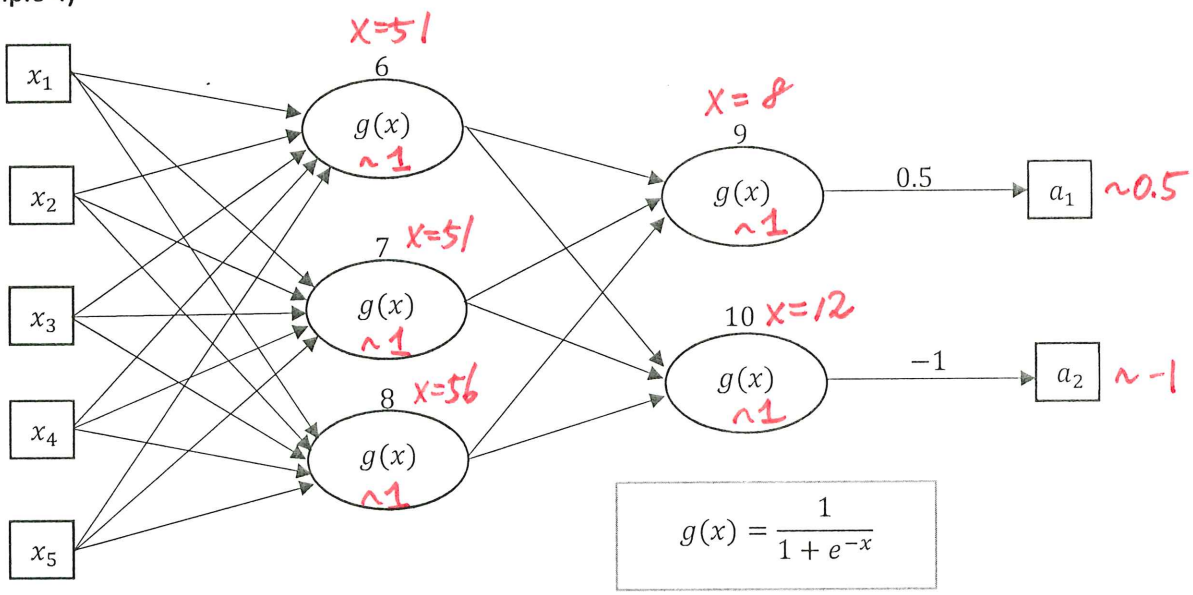
$y = -x + 0.5$

Example 3)



x_1	x_2	x_3	Output	
			a_1	a_2
5	10	0	~~10~~ 10	~~-20~~ -20

Example 4)



$w_{1,6}$	$w_{2,6}$	$w_{3,6}$	$w_{4,6}$	$w_{5,6}$	$w_{1,7}$	$w_{2,7}$	$w_{3,7}$	$w_{4,7}$	$w_{5,7}$	$w_{1,8}$	$w_{2,8}$	$w_{3,8}$	$w_{4,8}$	$w_{5,8}$
5	8	2	0	1	2	2	2	3	7	5	4	4	3	2

$w_{6,9}$	$w_{7,9}$	$w_{8,9}$	$w_{6,10}$	$w_{7,10}$	$w_{8,10}$	Weights
0	1	7	5	4	3	

x_1	x_2	x_3	x_4	x_5	Output	
					a_1	a_2
5	2	3	1	4	~0.5	~-1

0.99966 0.99999