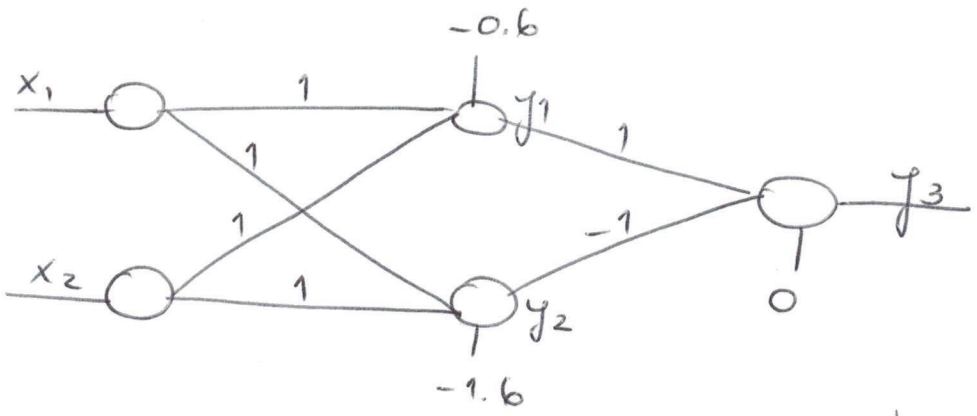
Problem 2

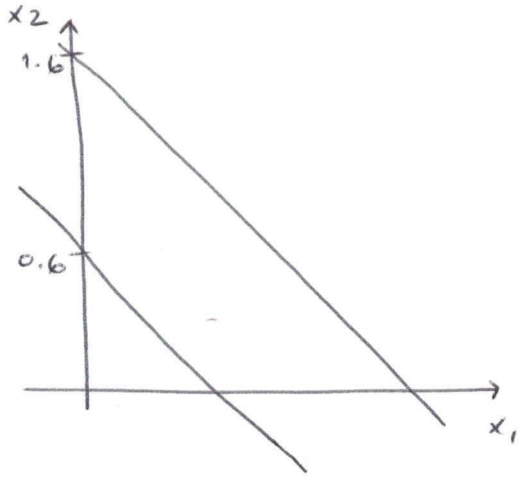


$$\phi(x) = \begin{cases} 1, & x > 0 \\ 0, & x \leq 0 \end{cases}$$

$$y_1 = \phi(x_1 + x_2 - 0.6)$$

$$y_2 = \phi(x_1 + x_2 - 1.6)$$

$$y_3 = \phi(y_1 - y_2 + 0)$$



x_1	x_2	y_1	y_2	y_3
0	0	0	0	0
0	1	1	0	1
1	0	1	0	1
1	1	1	1	0
0.5	0.5	1	0	0

Decision Surface

① $x_1 + x_2 - 0.6 > 0 \iff x_2 > -x_1 + 0.6 \Rightarrow$ (class) 1

$x_2 \leq -x_1 + 0.6 \Rightarrow$ (class) 0

② $x_1 + x_2 - 1.6 > 0 \iff x_2 > -x_1 + 1.6 \Rightarrow$ (class) 1

$x_2 \leq -x_1 + 1.6 \Rightarrow$ (class) 0

③ $y_1 - y_2 - 0 > 0 \iff y_1 > y_2 \Rightarrow$ (class) 1

$\Rightarrow y_1 \leq y_2 \Rightarrow$ (class) 0