

(T) 19 fev 2019

$$S = w_1 x_1 + w_2 x_2 + w_0$$

$$S = \theta \Leftrightarrow \theta = \begin{cases} 1 & \text{se } w_0 + w_1 x_1 + w_2 x_2 > 0 \\ -1 & \text{caso contrário} \end{cases}$$

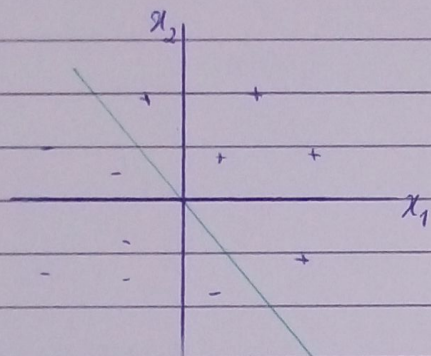
Se

$\theta > 0 \rightarrow$  disparou, identificou um padrão, dos inputs resultou um output positivo

$\theta < 0 \rightarrow$  dos inputs resultou um output negativo

$S = 0 \rightarrow$  transição, quando muda de um output positivo para um output negativo

$$S = 0 \Leftrightarrow \underset{1}{w_1} x_1 + \underset{1}{w_2} x_2 + \underset{0}{w_0} = 0 \Leftrightarrow x_1 + x_2 = 0 \Leftrightarrow x_2 = -x_1$$



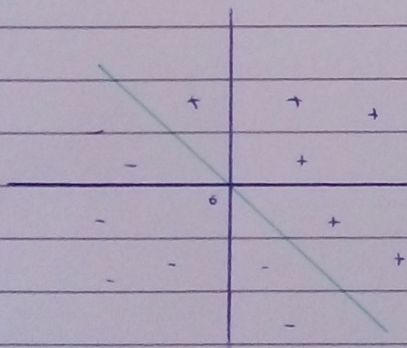
$$x_2 = \frac{w_1}{w_2} x_1 - \frac{w_0}{w_2}$$

$$(y = mx + b)$$

↓  
superfície  
de decisão

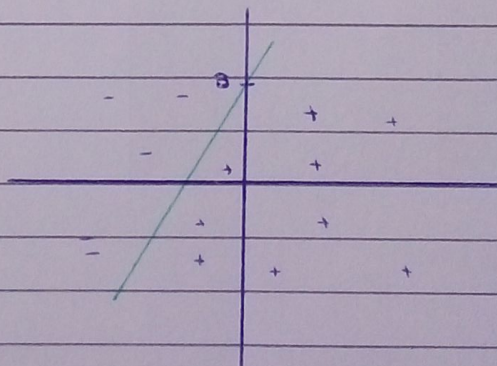
(ex 1)  $w_1 = 2, w_2 = 1, w_0 = 0$

$$\hookrightarrow x_2 = -2x_1$$



(ex 2)  $w_1 = -2, w_2 = 1, w_0 = -3$

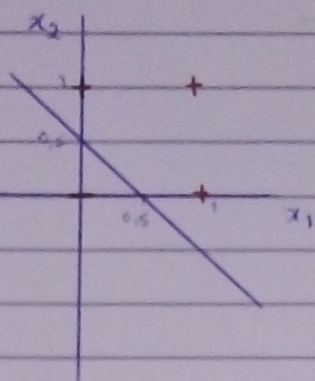
$$\hookrightarrow x_2 = 2x_1 + 3$$





• Representar uma percepção:

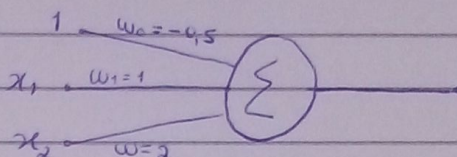
OR



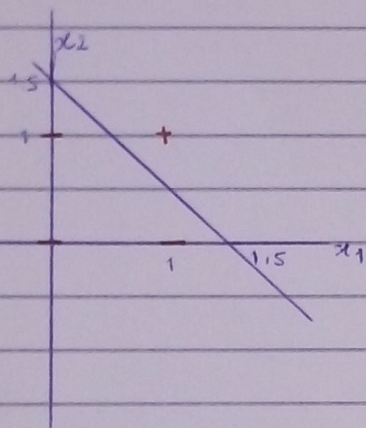
onde tem que passar a reta para separar negativos e positivos?

$$w_1 = w_2 = 1$$

$$w_0 = -0,5$$



AND

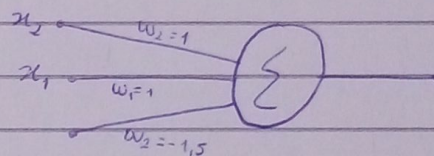


AND

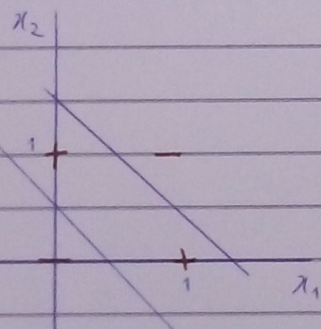
$$w_1 = w_2 = 1$$

$$w_0 = -1,5$$

00	0
01	0
10	0
11	1



XOR



$x_2$	$x_1$	$\theta$
0	0	0
0	1	1
1	0	1
1	1	0

