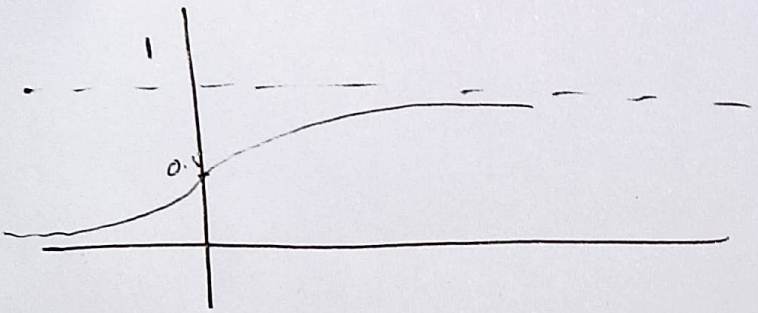
Logistic Regression. (Classification)

→ From linear, $y = \theta_0 + \theta_1 x$.
However this is regression, we need to classify.

$$\therefore \quad y' = \frac{1}{1+e^{-y}}$$

y' - probability (p) ; y = log of odds = $\log\left(\frac{p}{1-p}\right)$

$1/1+e^{-y}$ is always between 0 & 1



Asymptotic on both sides.

Loss function: $-y \log y'$, $y=1$
$-(1-y)\log(1-y')$, $y=0$

$$\therefore \boxed{-y \log y' - (1-y)\log(1-y')}$$

Gradient Descent works same but with different loss