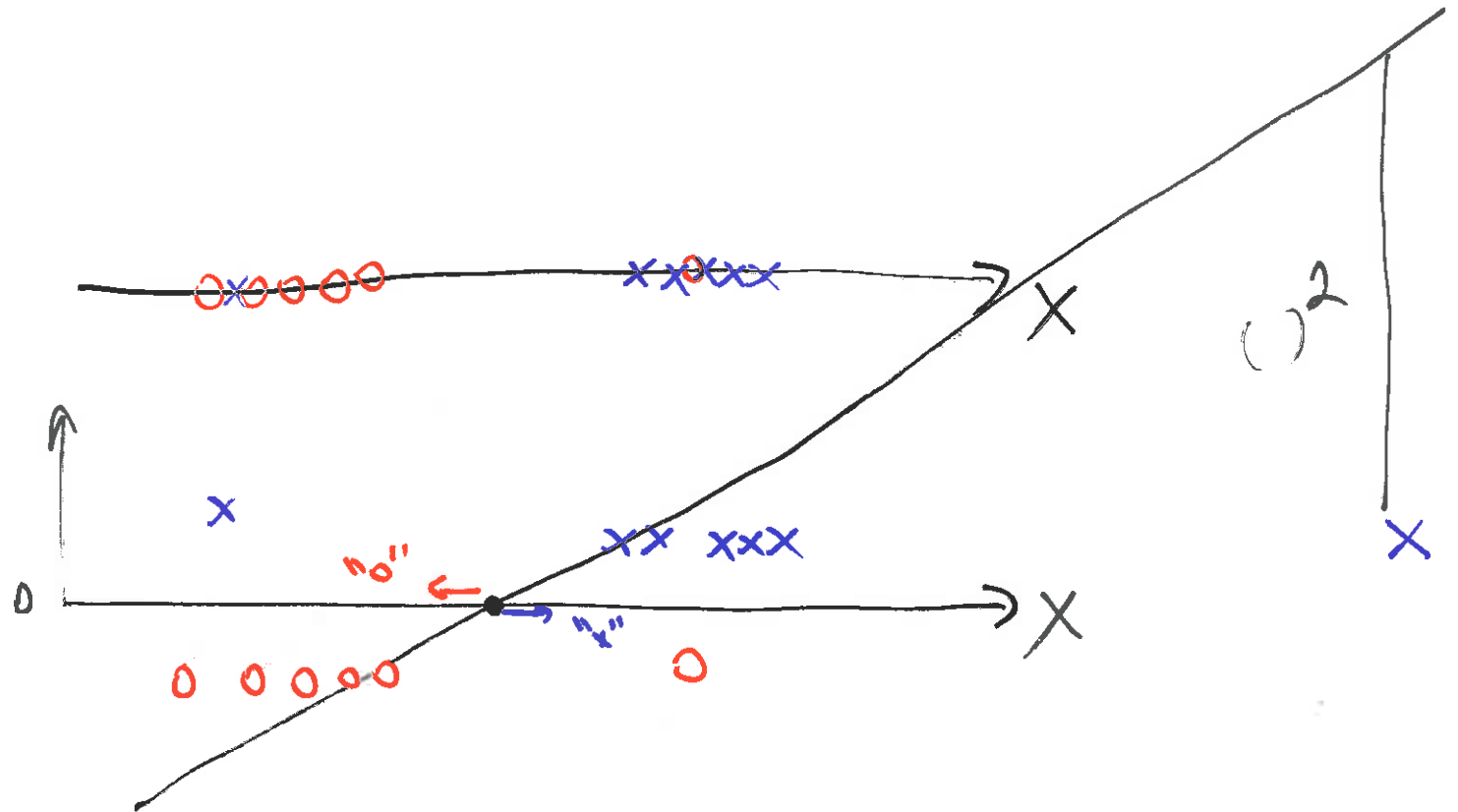
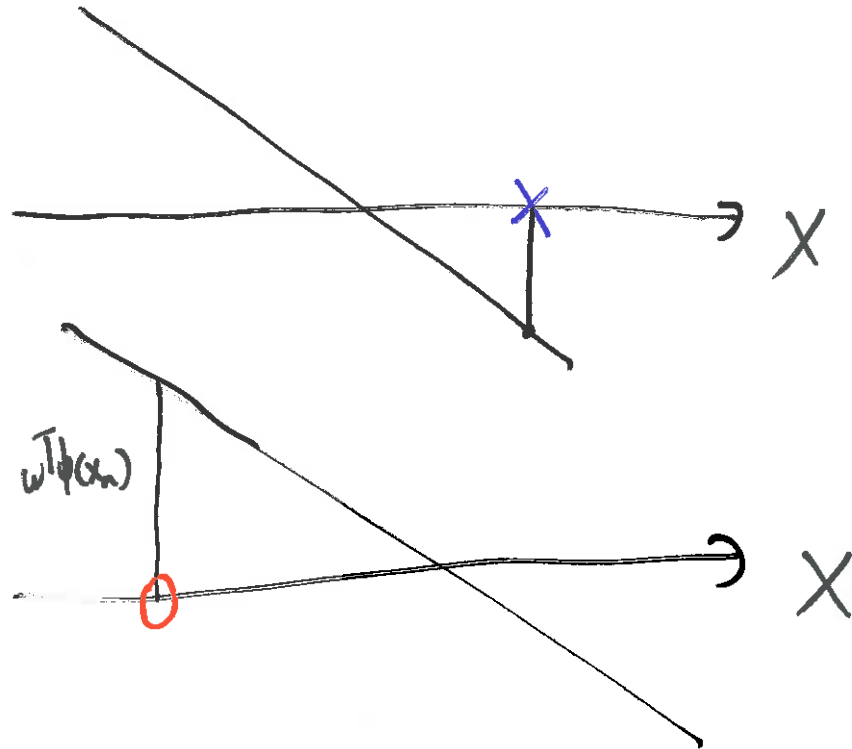


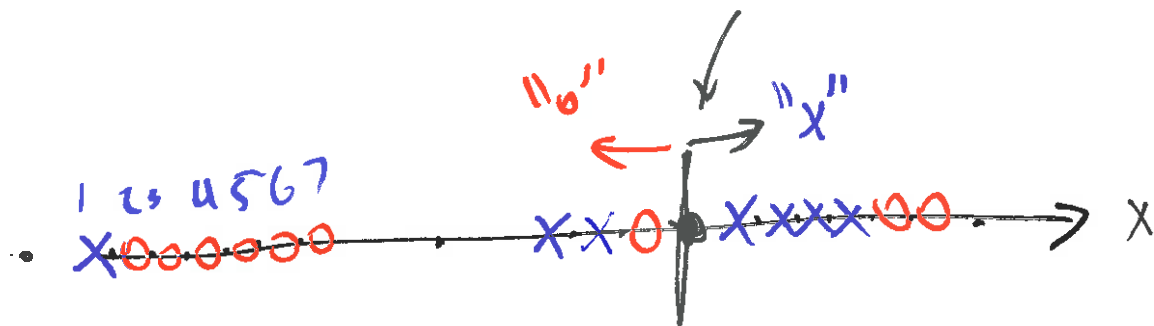
$x \in \mathbb{R}$
 $t \in \{ \overset{0}{\text{"Class 0"}}, \overset{x}{\text{"Class 1"}} \}$
 $t \in \{ -1, +1 \}$



x is "+/"
 0 is "-/"



$$E(w) = \frac{5}{N}$$



$$E(w) = \# \text{ mis-classified points} + \text{regularizer}$$

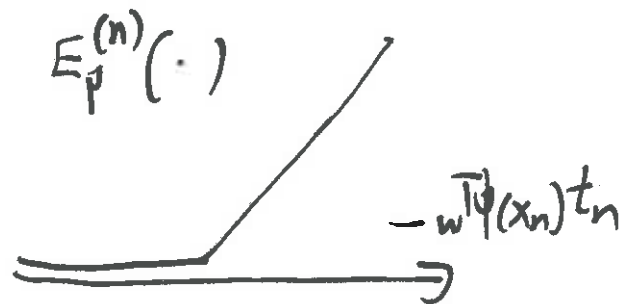
$$E_p(w) = - \sum_{n \in M} w^T \phi(x_n) t_n$$

→ wrong is bad
 → score of the classifier

$$E_R(w) = \# \text{ mis-classified points}$$
$$E_R^{(n)}(w) = \begin{cases} 0 & \text{if } n^{\text{th}} \text{ training example is correctly classified} \\ 1 & \text{o.w.} \end{cases}$$



$$E_p(w) = - \sum_{n \in M} w^T \phi(x_n) t_n$$



$w^{(0)}$

Perception error
on n^{th}
training example

$$E_p^{(n)}(w) = \begin{cases} 0 & \text{if } n^{\text{th}} \text{ training example is correctly classified} \\ -w^T \phi(x_n) t_n & \text{o.w.} \end{cases}$$

$$\nabla E_p^{(n)}(w) = \begin{cases} 0 & \text{if } n^{\text{th}} \text{ training ex. ...} \\ -\phi(x_n) t_n & \text{o.w.} \end{cases}$$

$$w^{(1)} = w^{(0)} - \eta \nabla E_p^{(1)}(w)$$

$$w^{(2)} = w^{(1)} - \eta \nabla E_p^{(2)}(w)$$

