



$$\frac{\partial a}{\partial x_2} = a w_2$$

$$\frac{\partial \sigma}{\partial a} = (1 - \sigma(a)) \sigma(a)$$

$$\frac{\partial a}{\partial w_2} = a x_2$$

$$\nabla_{\vec{w}} a = (\vec{w}^T \vec{x} - y) \vec{x}^T$$