

$$\begin{aligned}
 h(x)_{n \times 1} &= \sigma^T_{n \times n} \cdot x_{n \times 1} \\
 J(\theta) &= (h(x) - y)_{n \times 1} \cdot (h(x) - y)^T_{1 \times n} \cdot \frac{1}{2n}
 \end{aligned}$$

$$\begin{aligned}
 \frac{\partial J(\theta)}{\partial \theta} &= X_{n \times n} \cdot (h_{\theta}(x) - y)^T_{1 \times n} \cdot \frac{1}{n}
 \end{aligned}$$