

$$\text{No } f_{\theta} = \underset{\theta}{\text{argmax}} \quad \frac{1}{2} \sum_{i=1}^n (y_i - f_{\theta}(x_i))^2$$

$$= \underset{\theta}{\text{argmin}} \quad \frac{1}{2} \sum_{i=1}^n (y_i - f_{\theta}(x_i))^2$$

6 (d) Mean Square Error $\uparrow$
equivalent.

6 (e) assume linear function.
 $f_{\theta}(x) = wx$

$$\frac{\partial \mathcal{L}}{\partial w} = 2(y_i - wx) \times (wx)'$$

$$0 = 2(\bar{y} - w\bar{x})\bar{x}$$

$$\Leftrightarrow yx - wx^2 = 0$$

$$w = \frac{\sum_{i=1}^n y_i}{\sum_{i=1}^n x_i}$$