

$$J(\textcolor{green}{W}^{(1)}, \textcolor{red}{W}^{(2)}) = \left\| \hat{\boldsymbol{y}}(\textcolor{green}{W}^{(1)}, \textcolor{red}{W}^{(2)}) - \boldsymbol{y} \right\|_2^2$$

$$J(\textcolor{green}{W}^{(1)}, \textcolor{red}{W}^{(2)}) = - \sum_{k=0}^9 y_k \log \hat{y}_k(\textcolor{green}{W}^{(1)}, \textcolor{red}{W}^{(2)})$$

$$\begin{aligned} J(\textcolor{green}{W}^{(1)}, \textcolor{red}{W}^{(2)}) &= - \sum_{k=0}^9 y_k \log \hat{y}_k(\textcolor{green}{W}^{(1)}, \textcolor{red}{W}^{(2)}) \\ &= -1 \cdot \log \hat{y}_5 \quad (\leftarrow \text{正解が } 5 \text{ だったら}) \end{aligned}$$

$$\varphi\left(\sum_{i=1}^5 \textcolor{blue}{w}_i \textcolor{red}{x}_i\right)$$