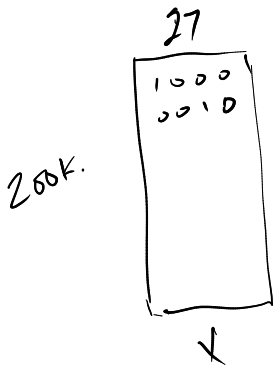

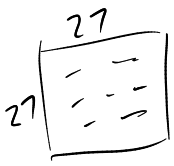

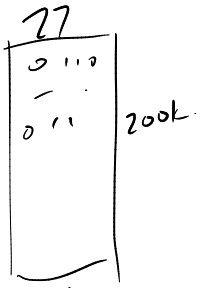

$\hat{y} = x \cdot w$

$\frac{\partial \hat{y}}{\partial w} = x$

$\frac{\partial L}{\partial \hat{y}}$

$L = \frac{1}{2}(y - \hat{y})^2$

$L = \frac{1}{2}(y^2 - 2y\hat{y} + \hat{y}^2)$

$L = \frac{y^2}{2} - y\hat{y} + \frac{\hat{y}^2}{2}$

$\frac{\partial L}{\partial \hat{y}} = -y + 2\frac{\hat{y}}{2}$

$= \hat{y} - y$

grad $\left(\frac{\partial L}{\partial w}\right) = \frac{\partial L}{\partial \hat{y}} \cdot \frac{\partial \hat{y}}{\partial w}$

$\uparrow \quad \uparrow$

$\hat{y} - y \quad x$