$$\frac{dc}{db} = 2$$
$$\frac{db}{dp} = 4$$
$$\frac{dc}{dp} = \frac{dc}{db} \cdot \frac{db}{dp} = 8$$

$$\frac{\partial L}{\partial W_2} = \frac{\partial L}{\partial \sigma(W_2 \times \sigma(W_1 \times X))} \cdot \frac{\partial \sigma(W_2 \times \sigma(W_1 \times X))}{\partial W_2 \times \sigma(W_1 \times X)} \cdot \frac{\partial W_2 \times \sigma(W_1 \times X)}{\partial W_2}$$

$$\hat{y} = \sigma(W_2 \times \sigma(W_1 \times X))$$

$$\frac{\partial L}{\partial W_2} = \frac{\hat{y} - y}{\hat{y} - \hat{y}^2} \cdot \hat{y}(1 - \hat{y}) \cdot \sigma(W_1 \times X)$$

$$\frac{\partial L}{\partial W_1} = \frac{\partial L}{\partial \sigma(W_2 \times \sigma(W_1 \times X))} \cdot \frac{\partial \sigma(W_2 \times \sigma(W_1 \times X))}{\partial W_2 \times \sigma(W_1 \times X)} \cdot \frac{\partial W_2 \times \sigma(W_1 \times X)}{\partial \sigma(W_1 \times X)}$$
$$\cdot \frac{\partial \sigma(W_1 \times X)}{W_1 \times X} \cdot \frac{\partial W_1 \times X}{\partial W_1}$$

$$\hat{y} = \sigma(W_2 \times \sigma(W_1 \times X))$$

$$\frac{\partial L}{\partial W_1} = \frac{\hat{y} - y}{\hat{y} - \hat{y}^2} \cdot \hat{y}(1 - \hat{y}) \cdot W_2 \cdot \sigma(W_1 \times X)(1 - \sigma(W_1 \times X)) \cdot X$$