

$$\begin{aligned}
\frac{\partial D(X, w, b)}{\partial w} &= \frac{D(X + \epsilon, w, b) - D(X - \epsilon, w, b)}{(X + \epsilon) - (X - \epsilon)} = \frac{[w(X + \epsilon) + b] - [w(X - \epsilon) + b]}{(X + \epsilon) + (-X + \epsilon)} \\
&= \frac{[w(X + \epsilon) + b] + [-w(X - \epsilon) - b]}{(X - X) + (\epsilon + \epsilon)} = \frac{[wX + w\epsilon + b] + [-wX + w\epsilon - b]}{2\epsilon} \\
&= \frac{(wX - wX) + (w\epsilon + w\epsilon) + (b - b)}{2\epsilon} = \frac{2w\epsilon}{2\epsilon} = \frac{w\epsilon}{\epsilon} = w
\end{aligned}$$