$$\frac{\partial D(X,w,b)}{\partial w} = \frac{D(X,w+\epsilon,b) - D(X,w-\epsilon,b)}{(w+\epsilon)-(w-\epsilon)} = \frac{[X(w+\epsilon)+b] - [X(w-\epsilon)+b]}{(w+\epsilon)+(-w+\epsilon)}$$

$$= \frac{[X(w+\epsilon)+b] + [-X(w-\epsilon)-b]}{(w-w)+(\epsilon+\epsilon)} = \frac{[Xw+X\epsilon+b] + [-Xw+X\epsilon - b]}{2\epsilon}$$

$$= \frac{(Xw-Xw)+(X\epsilon+X\epsilon)+(b-b)}{2\epsilon} = \frac{2X\epsilon}{2\epsilon} = \frac{X\epsilon}{\epsilon} = X$$

$$\frac{\partial D(X,w,b)}{\partial b} = \frac{D(X,w,b+\epsilon) - D(X,w,b-\epsilon)}{(b+\epsilon)-(b-\epsilon)} = \frac{[Xw+(b+\epsilon)] - [Xw+(b-\epsilon)]}{(b+\epsilon)+(-b+\epsilon)}$$

$$= \frac{[Xw+(b+\epsilon)] + [-Xw-(b-\epsilon)]}{(b-b)+(\epsilon+\epsilon)} = \frac{[Xw+b+\epsilon] + [-Xw-b+\epsilon]}{2\epsilon}$$

$$= \frac{(Xw-Xw)+(b-b)+(\epsilon+\epsilon)}{2\epsilon} = \frac{2\epsilon}{2\epsilon} = \frac{\epsilon}{\epsilon} = 1$$