

Machine Learning Assignment 94

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Problem A

$$\sigma(x) = \frac{1}{1 + e^{-x}} \quad (1)$$

$$\sigma(x) (1 + e^{-x}) = 1 \quad (2)$$

$$\frac{d}{dx} \sigma(x) (1 + e^{-x}) = 0 \quad (3)$$

$$\sigma'(x) (1 + e^{-x}) - e^{-x} \sigma(x) = 0 \quad (4)$$

$$\sigma'(x) = \sigma(x) \frac{e^{-x}}{1 + e^{-x}} \quad (5)$$

$$= \sigma(x) \frac{1 + e^{-x} - 1}{1 + e^{-x}} \quad (6)$$

$$= \sigma(x) (1 - \sigma(x)) \quad (7)$$

$$(8)$$