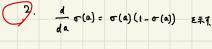
6.3
$$\sigma(a) = \frac{1}{1 + \exp(-a)}$$
1. $\sigma(a) = 1 - \sigma(a) = \frac{1}{1 + \exp(-a)}$



$$da$$

$$d = d$$

$$d = d$$

$$\frac{d}{da} \sigma(a) = \frac{d}{da} \frac{1}{1 + \exp(-a)}$$

$$= \frac{\exp(-a)}{(1 + \exp(-a))^2}$$

 $= \frac{1}{1 + \exp(-a)} \times \frac{\exp(-a)}{1 + \exp(-a)}$

 $= \frac{1}{1+exp(-a)} \times \left\{1-\left(\frac{1}{1+exp(-a)}\right)\right\}$

3.
$$A \in \mathbb{R}^{n \times d}$$
, $\sigma(a) \in [0,1] \in \mathbb{R}^{\frac{n}{2}}$

$$\frac{d}{da} \sigma(a) = \sigma(a) \left(1 - \sigma(a)\right)$$

$$= \frac{1}{1 + ckp(-k)} \times \frac{1}{c^{n}k!} > D$$

$$1 = \frac{1}{1 + ckp(-k)} \times \frac{1}{c^{n}k!} > D$$

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$$1 = \frac{1}{1 + ckp(-k)} \times \frac{1}{c^{n}k!} = \sigma(-k) \times \frac{1}{c^{n}k$$