

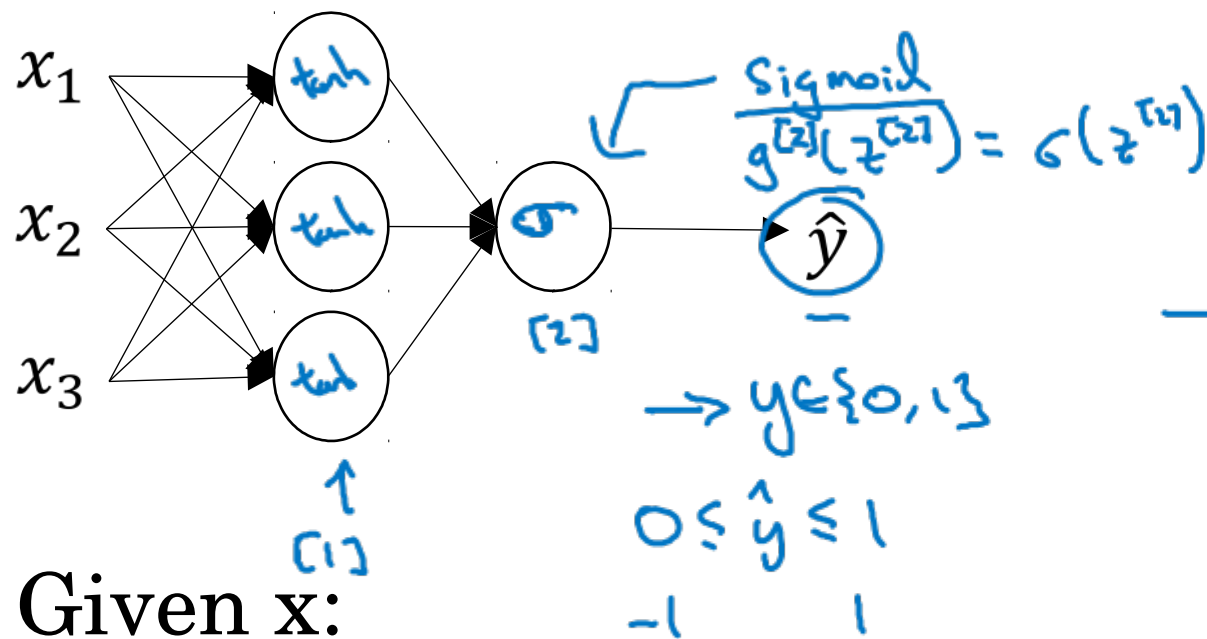


deeplearning.ai

One hidden layer Neural Network

Activation functions

Activation functions



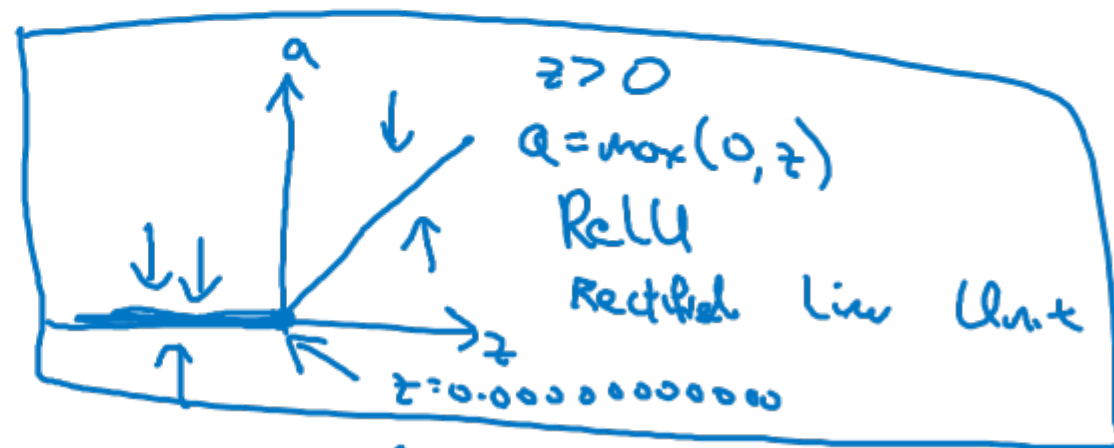
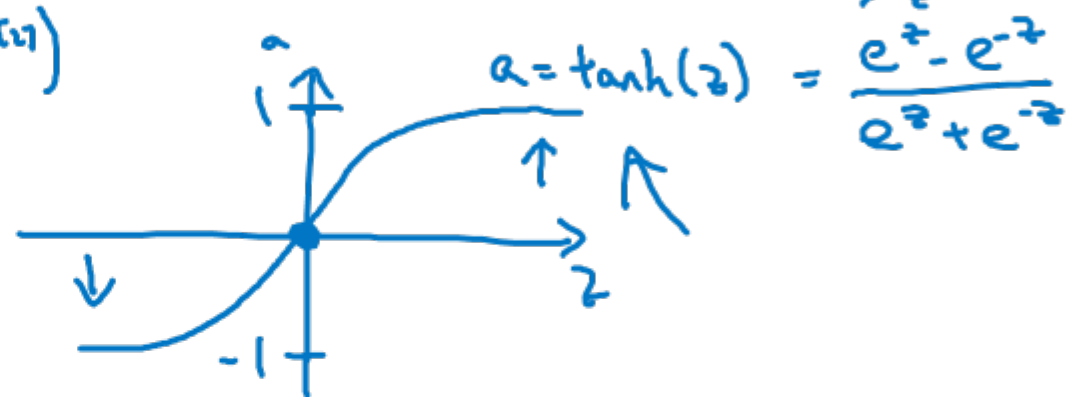
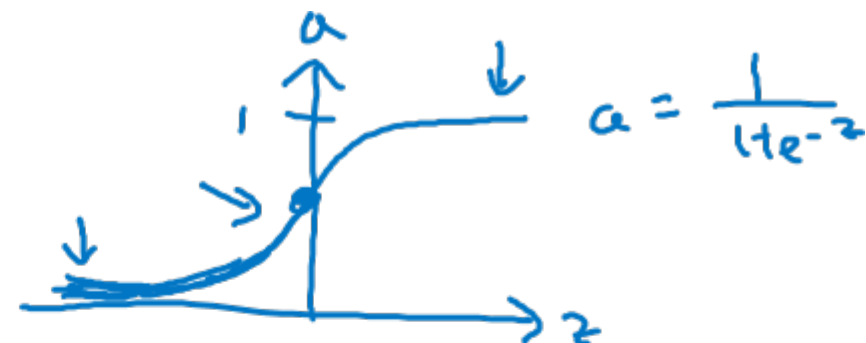
Given x :

$$z^{[1]} = W^{[1]}x + b^{[1]}$$

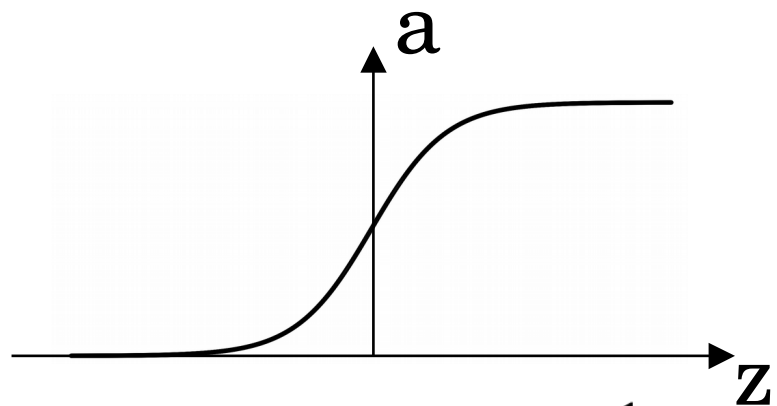
$$\rightarrow \text{[diagonal lines]} g^{(1)}(z^{[1]})$$

$$z^{[2]} = W^{[2]}a^{[1]} + b^{[2]}$$

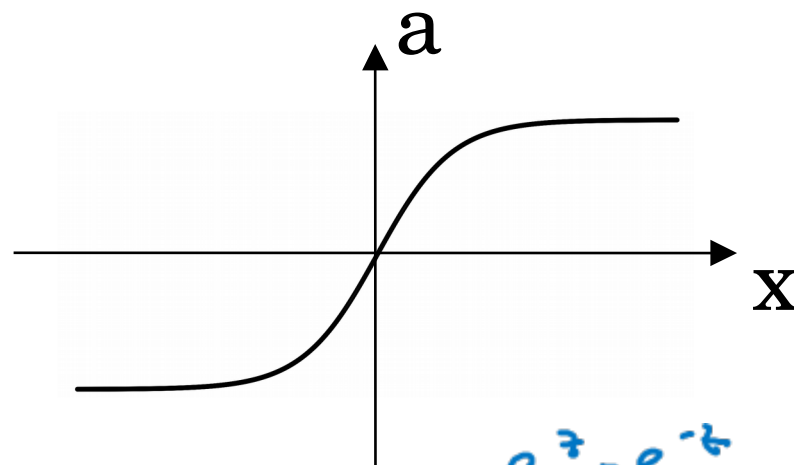
$$\rightarrow \text{[diagonal lines]} g^{(2)}(z^{[2]})$$



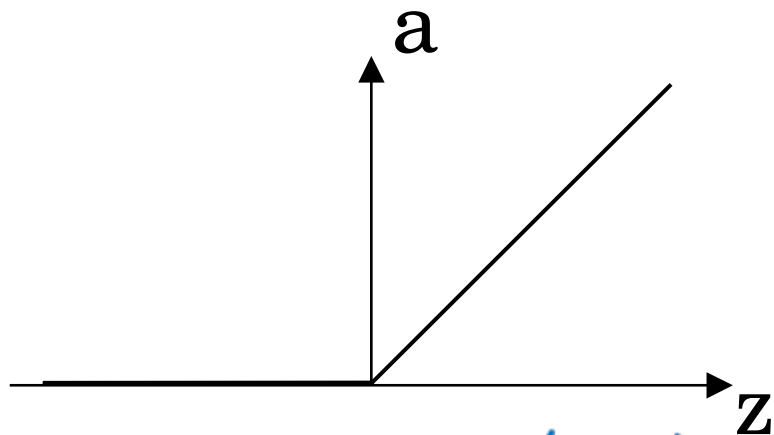
Pros and cons of activation functions



sigmoid: $a = \frac{1}{1 + e^{-z}}$



tanh: $a = \frac{e^z - e^{-z}}{e^z + e^{-z}}$



ReLU $a = \max(0, z)$

