

function

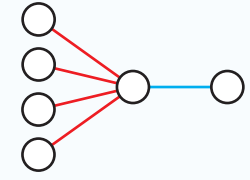
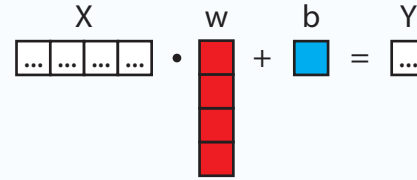
matrices

computational graph

linear
regression

$$Y = f(X, w_1, b_1)$$

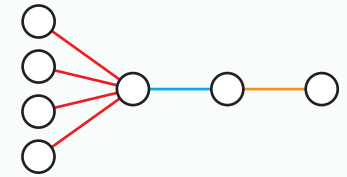
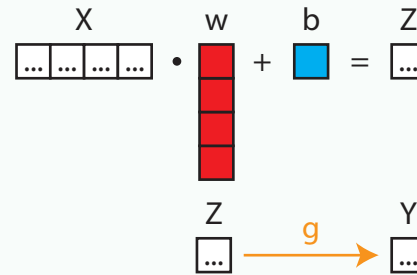
$$f(x, w, b) = x \cdot w + b$$

logistic
regression
(classification)

$$Z = f(X, w_1, b_1)$$

$$Y = g(Z)$$

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

deep net
regressor

$$Z = \tanh(f(X, w_1, b_1))$$

$$Y = \text{ReLu}(f(Z, w_2, b_2))$$

$$\text{ReLu}(x) = \max(x, 0)$$

$$\tanh x = \frac{e^{2x} - 1}{e^{2x} + 1}$$

