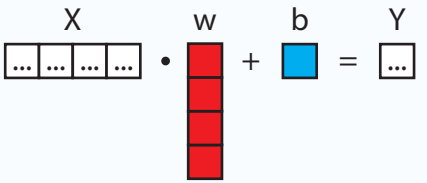
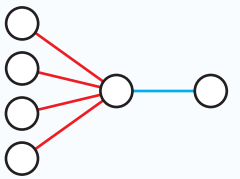
function | matrices | neural representation

linear regression

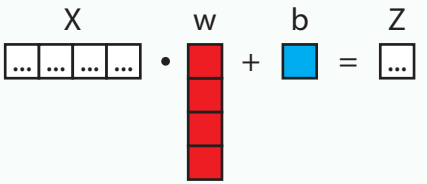
$$Y = f(X, w_1, b_1)$$
$$f(x, w, b) = x \cdot w + b$$

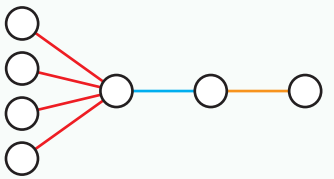


logistic regression (classification)

$$Z = f(X, w_1, b_1)$$
$$Y = g(Z)$$
$$g(x) = \frac{1}{1 + e^{-x}}$$



deep net regressor

$$Z = \tanh(f(X, w_1, b_1))$$
$$Y = \mathrm{ReLu}(f(Z, w_2, b_2))$$
$$\mathrm{ReLu}(x) = \max(x, 0)$$
$$\tanh x = \frac{e^{2x} - 1}{e^{2x} + 1}$$