

# What neural networks can learn

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Equations for examples

$$y = mx + b$$

$$u_{00} = x_0 w_{00}$$

$$u_{10} = x_1 w_{10}$$

$$v_0 = u_{00} + u_{10}$$

$$x_0 = 1$$

$$x_1 = x$$

$$w_{00} = b$$

$$w_{10} = m$$

$$v_0 = y$$

$$u_{00} = x_0 w_{00}$$

$$u_{10} = x_1 w_{10}$$

$$u_{20} = x_2 w_{20}$$

$$v_0 = u_{00} + u_{10} + u_{20}$$

$$u_{i0} = x_i w_{i0}$$

$$v_0 = \sum_i u_{i0}$$

$$u_{i0I} = x_i w_{i0I}$$

$$v_{0I} = \sum_i u_{i0I}$$

$$u_{i0II} = x_i w_{i0II}$$

$$v_{0II} = \sum_i u_{i0II}$$

$$u_{i0III} = x_i w_{i0III}$$

$$v_{0III} = \sum_i u_{i0III}$$

$$u_{i0L} = x_i w_{i0L}$$

$$v_{0L} = \sum_i u_{i0L}$$

$$u_{ij} = x_i w_{ij}$$

$$v_j = \sum_i u_{ij}$$

$$u_{ij} = x_i w_{ij}$$

$$v_j = \sum_i u_{ij}$$

$$y_j = f(v_j)$$

$$f(a) = \frac{1}{1 + e^{-a}}$$

$$u_{ij} = x_i w_{ij}$$

$$v_j = \sum_i u_{ij}$$

$$y_j = f(v_j)$$

$$f(a) = \frac{e^a - e^{-a}}{e^a + e^{-a}}$$