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II. Can you calculate this by hand? I am sharing five hand-on exercises to teach the basics of deep learning.
[Exercise 2 of 5: Four Neurons]

Thank you so much for liking the first exercise I shared yesterday.

The second exercise extends from 1 to 4 neurons. This exercise allows students to practice the following:

1. Multiply the same input x with each neuron's weights plus a bias term in each row

$w_1 * x + b_1 = 2 - 1 + 3 - 5 = -1$
$w_2 * x + b_2 = 2 + 1 = 3$
$w_3 * x + b_3 = 1 + 3 + 1 = 5$
$w_4 * x + b_4 = 2 + 3 - 2 = 3$
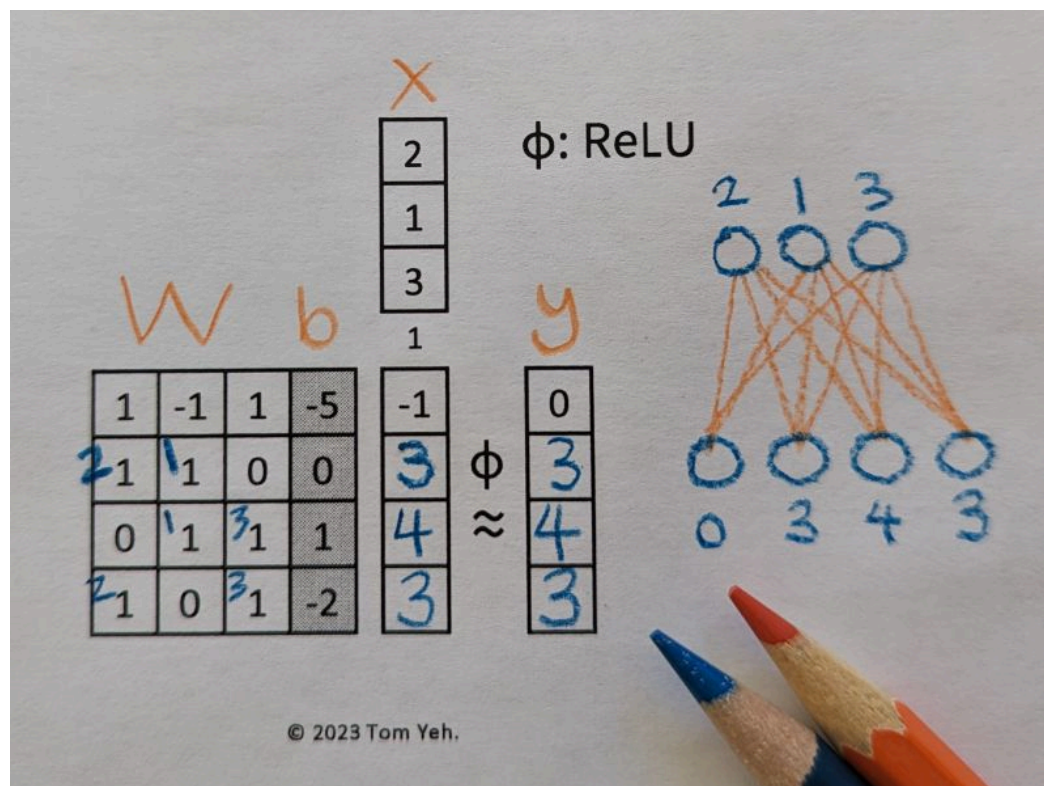
2. ReLU: negative values → 0; positive values → same values
3. Count the parameters of each node: 3 + 1
4. Count all the parameters of this network: 4 * (3 + 1) = 16
5. Draw a graphical representation of this network

This picture actually contains an error. Can you spot it? Can you explain why it is an error?

Next, I will extend this exercise from one layer to multiple layers.

φ: ReLU

$$\phi \left(W \cdot \begin{bmatrix} x \\ 1 \end{bmatrix} \right) \approx y$$

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