

This last (top-most) node represents
the probability of survival

You will often see these nodes
labeled as **z** for outputs.
We are using **x** to simplify the math
later in the document.

$$x_3^{(2)} = \sigma \left(s_1^{(2)} \right) = \frac{1}{1 + e^{-s_1^{(2)}}}$$

$$s_1^{(2)} = \sum_{i=1}^2 w_{1,i}^{(2)} x_i^{(2)}$$

You will often see these nodes
labeled as **h** for hidden units.
We are using **x** to simplify the math
later in the document.

$$x_1^{(2)} = \sigma \left(s_1^{(1)} \right) = \frac{1}{1 + e^{-s_1^{(1)}}}$$

$$x_2^{(2)} = \sigma \left(s_2^{(1)} \right) = \frac{1}{1 + e^{-s_2^{(1)}}}$$

$$s_1^{(1)} = \sum_{i=1}^3 w_{1,i}^{(1)} x_i^{(1)}$$

$$s_2^{(1)} = \sum_{i=1}^3 w_{2,i}^{(1)} x_i^{(1)}$$

