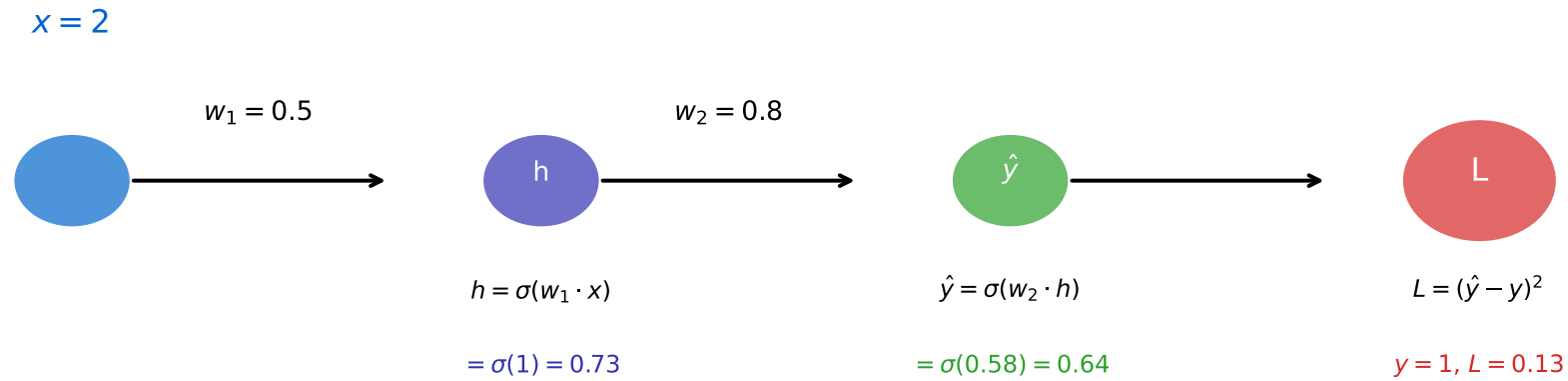


## Worked Example: Backpropagation



### Backward Pass:

$$\frac{\partial L}{\partial \hat{y}} = 2(\hat{y} - y) = -0.72$$

$$\frac{\partial \hat{y}}{\partial w_2} = h \cdot \sigma'(\cdot) = 0.17$$

$$\frac{\partial L}{\partial w_2} = -0.72 \times 0.17 = -0.12$$

$$\frac{\partial L}{\partial h} = w_2 \cdot \sigma'(\cdot) \cdot \frac{\partial L}{\partial \hat{y}}$$

$$\frac{\partial L}{\partial w_1} = x \cdot \sigma'(\cdot) \cdot \frac{\partial L}{\partial h}$$

### Weight Updates:

$$w_2^{new} = w_2 - \eta \cdot \frac{\partial L}{\partial w_2} = 0.8 - 0.1 \times (-0.12) = 0.812$$

$$w_1^{new} = w_1 - \eta \cdot \frac{\partial L}{\partial w_1} \text{ (similar calculation)}$$

$\eta = 0.1$  (learning rate)