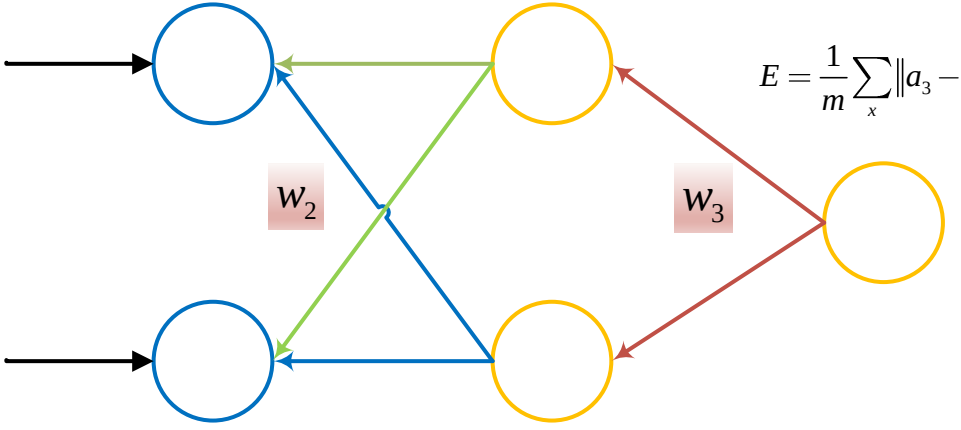

$$E = \frac{1}{m}\sum_x \|a_3 - y\|^2$$

$$\delta_2 = w_3{}^T \delta_3 \odot \sigma'(z_2) \qquad \delta_3 = \frac{\partial E}{\partial z_3} = \frac{2}{m}\sum_x (a_3 - y) \odot \sigma'(z_3)$$

$$\frac{\partial E}{\partial w_2} = \delta_2 a_1{}^T \quad \frac{\partial E}{\partial b_2} = \delta_2 \qquad \frac{\partial E}{\partial w_3} = \delta_3 a_2{}^T \qquad \frac{\partial E}{\partial b_3} = \delta_3$$