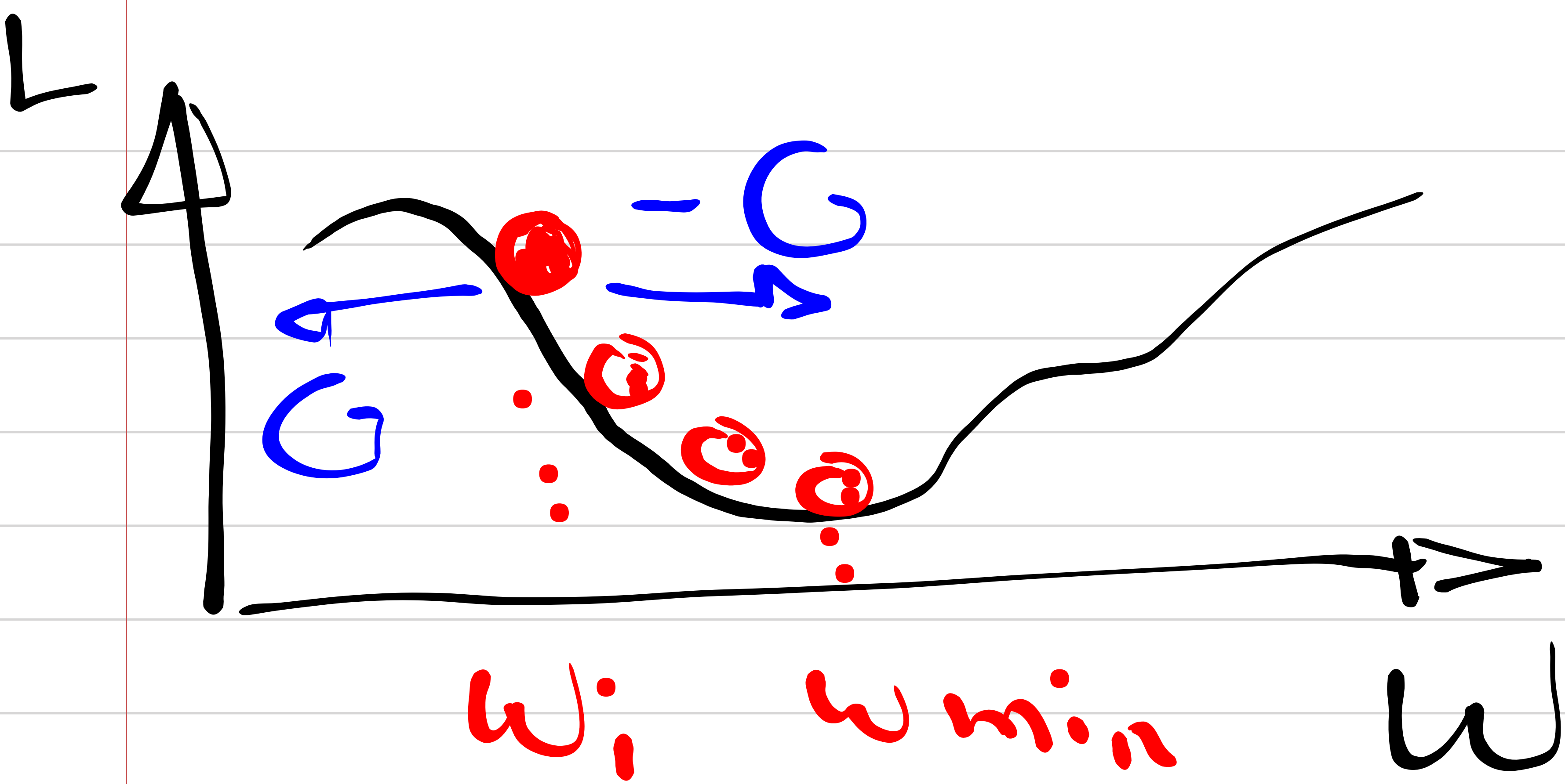


$$w_i(t+1) = w_i(t) + \Delta w_i$$

$$w_i(t+1) = w_i(t) + \alpha\left(-\frac{\partial L}{\partial w_i}\right)$$

$$L = MSE = \frac{1}{PM}\sum_{p=1}^{P}\sum_{k=1}^{M}\left(d_k^p - y_k^p\right)^2$$

$$L = (d-y)^2$$

$$\frac{\partial L}{\partial w_i} = \frac{\partial L}{\partial e}\cdot\frac{\partial e}{\partial y}\cdot\frac{\partial y}{\partial w_i}$$

$$\frac{\partial L}{\partial w_i} = \frac{\partial L}{\partial e} \cdot \frac{\partial e}{\partial y} \cdot \frac{\partial y}{\partial w_i}$$

$$L = (d-y)^2 = e^2$$

$$\partial L / \partial e = 2 \cdot e$$

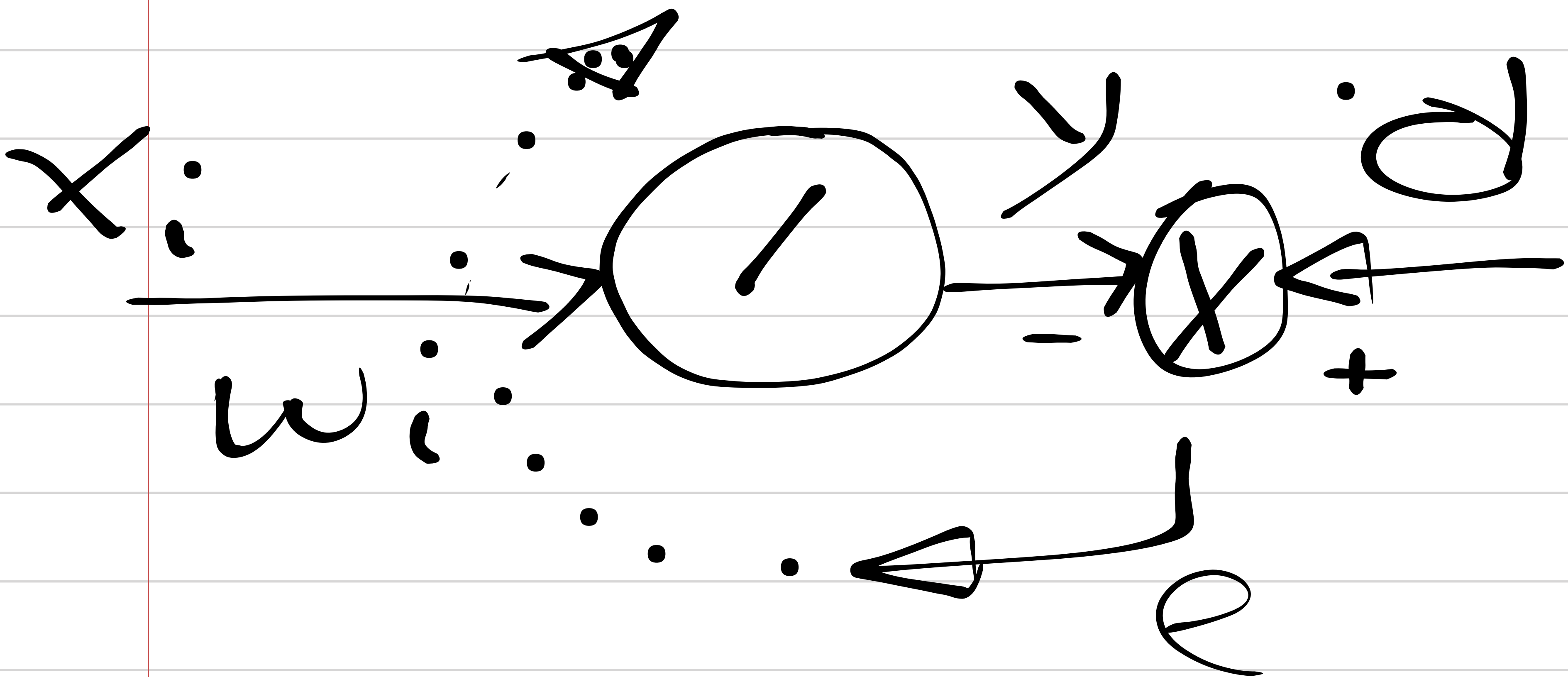
$$\partial e / \partial y = -1$$

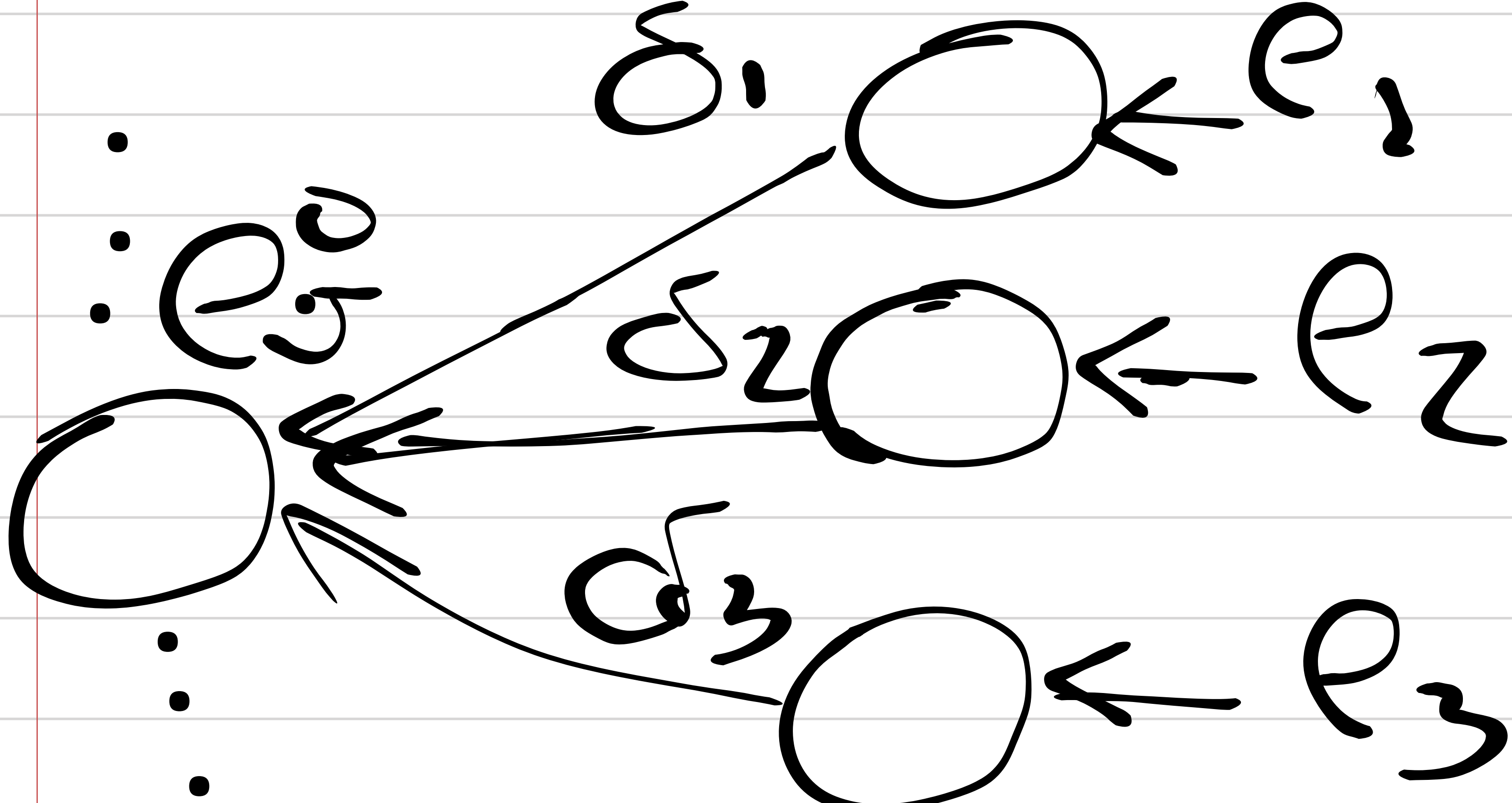
$$\partial y / \partial w_i = x_i$$

$$\partial L / \partial w_i = 2(d-y)(-1)\, x_i$$

$$-\partial L / \partial w_i = 2(d-y)\, x_i$$

$$w_i(t+1) = w_i(t) + 2\alpha (d-y)\, x_i$$





$$e_j^o = \delta_1 w_{1j} + \delta_2 w_{2j} + \delta_3 w_{3j}$$

$$= \sum_{k=1}^{3} \delta_k w_{kj}$$

BackPro-pagation

x_1	x_2	$x_1 \wedge x_2$
0	0	0
0	1	0
1	0	0
1	1	1