

$$y = a_n x^n + \dots + a_1 x_1 + a_0$$

K	x_k	y_k
0	—	—
⋮	—	—
m	—	—

$$\left\{ \begin{aligned} \psi &= \sum_{k=0}^m [\gamma(x_k) - y_k]^2 \\ &= \sum_k [a_n x_k^n + \dots + a_0 - y_k]^2 \end{aligned} \right.$$

$$\frac{\partial \psi}{\partial a_j} = 0 \Rightarrow \sum_k 2[a_n x_k^n + \dots + a_1 x_k + a_0 - y_k] x_k^j = 0$$

$$\Rightarrow \frac{\partial \psi}{\partial a_0} = 0 \Rightarrow \sum_k (a_n x_k^n + \dots + a_1 x_k + a_0) = \sum y_k$$

$$\Rightarrow \frac{\partial \psi}{\partial a_1} = 0 \Rightarrow \sum_k (a_n x_k^n + \dots + a_1 x_k + a_0) x_k = \sum y_k x_k$$

$$\vdots$$

$$\Rightarrow \frac{\partial \psi}{\partial a_n} = 0 \Rightarrow \sum_k (\quad) x_k^n = \sum y_k x_k^n$$