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$$\chi^2(a_0, a_1) = \sum_{i=1}^{n} (y_i - (a_0 + a_1 x_i))^2$$

$$\frac{\partial \chi^2}{\partial a_0} = \sum_{i=1}^{n} (2(y_i - (a_0 + a_1 x_i))(-1)) = \sum_{i=1}^{n} 2(a_0 + a_1 x_i) - 2y_i = 0$$

$$\sum_{i=1}^{n} 2(a_0 + a_1 x_i) = 2y_i \rightarrow \quad a_0 = \overline{y_i} - a_1 \overline{x_i}$$ por la sumatoria

$$\frac{\partial \chi^2}{\partial a_1} = \sum_{i=1}^{n} (2(y_i - a_0 - a_1 x_i)(-x_i)) = \sum_{i=1}^{n} (-2x_i y_i + 2a_0 x_i + 2a_1 x_i^2) = 0$$

$$\sum_{i=1}^{n} 2a_1 x_i^2 = \sum_{i=1}^{n} (2x_i y_i - 2a_0 x_i) \rightarrow a_1 = \sum_{i=1}^{n} \left(\frac{x_i y_i - a_0 x_i}{x_i^2} \right)$$

$$a_1 = \sum_{i=1}^{n} \left(\frac{x_i y_i - a_0 x_i}{x_i^2} \right)$$ Remplazando a_0

coeficientes

$$a_1 = \sum_{i=1}^{n} \left(\frac{x_i y_i - (y - a_1 x) x_i}{x_i^2} \right)$$ expandimos y tenemos que $a_1 = \dfrac{\Sigma xy - \dfrac{\Sigma x \Sigma y}{n}}{\Sigma x^2 - \dfrac{(\Sigma x)^2}{n}}$

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$$\chi^2(a_0, a_1, a_2) = \sum_{i=1}^{n} (y_i - (a_0 + a_1 x_i + a_2 x_i^2))^2$$

$$\frac{\partial \chi^2}{\partial a_0} = \sum_{i=1}^{n} \left(2(y_i - (a_0 + a_1 x_i + a_2 x_i^2))(-1) \right) = 0$$

$$\sum_{i=1}^{n} \left(y_i = a_0 + a_1 x_i + a_2 x_i^2 \right)$$

$$\frac{\partial \chi^2}{\partial a_1} = \sum_{i=1}^{n} \left(2(y_i - (a_0 + a_1 x_i + a_2 x_i^2))(-x_i) \right) = 0$$

$$\sum_{i=1}^{n} \left(y_i x_i = a_0 x_i + a_1 x_i^2 + a_2 x_i^3 \right)$$

$$\frac{\partial \chi^2}{\partial a_2} = \sum_{i=1}^{n} \left(2(y_i - (a_0 + a_1 x_i + a_2 x_i^2))(-x_i^2) \right) = 0$$

$$\sum_{i=1}^{n} \left(y x_i^2 = a_0 x_i^2 + a_1 x_i^3 + a_2 x_i^4 \right)$$

Solo cambia que el numero que potencia aumenta en 1 para todos los x_i

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