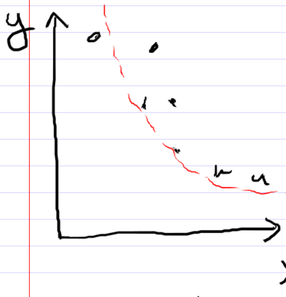
Tutorial 5: Linear Regression



So you have your data

you know it's probably

$y = Ae^{-kx}$ A-? K-?

Let's say A=1

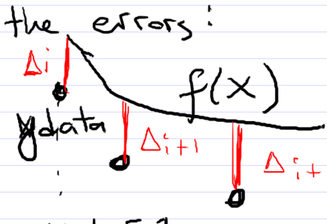
k-?

How do we find k-?

Ideas?

k=0.001

How do we check for the errors:



$\sum_i^1 \Delta_i^2 = \chi^2$

$\Delta_i = y_{data}^{[i]} - f(x_{data}^{[i]})_k$

1) Problem given two arrays

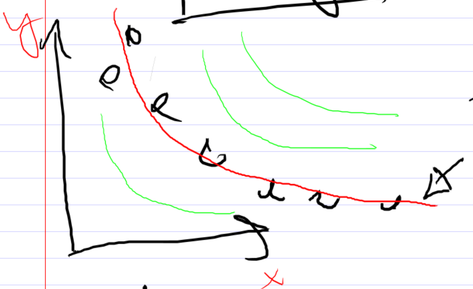
f(xdata_array)

ydata_array

~~Goba~~

Create a function that will calculate χ^2 factor

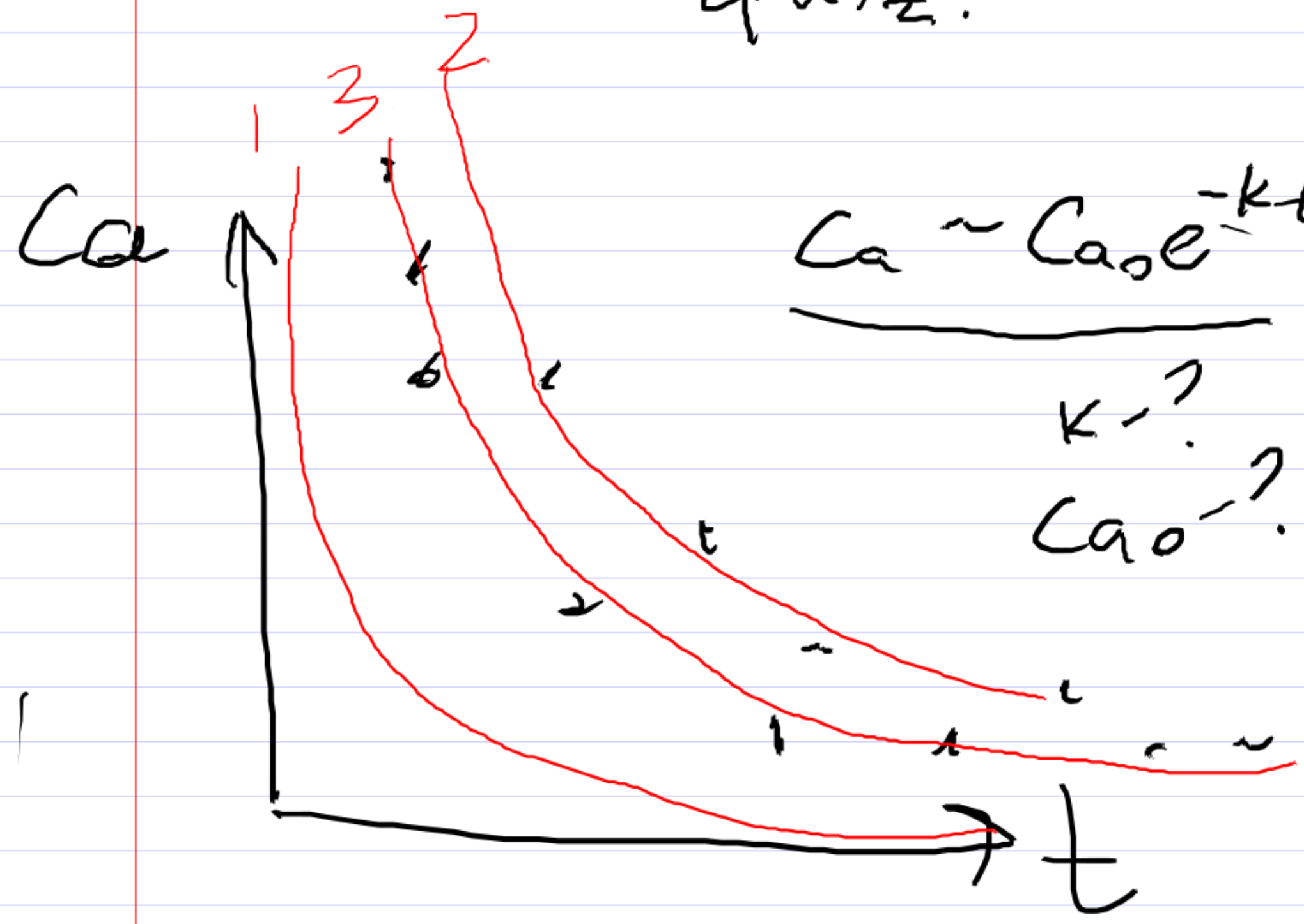
2) Now Lets see how it could be applied to fitting



Select k so χ^2 is smallest

Let's illustrate that with Python

Tutorial 4: Regression & Prep for take home quiz.

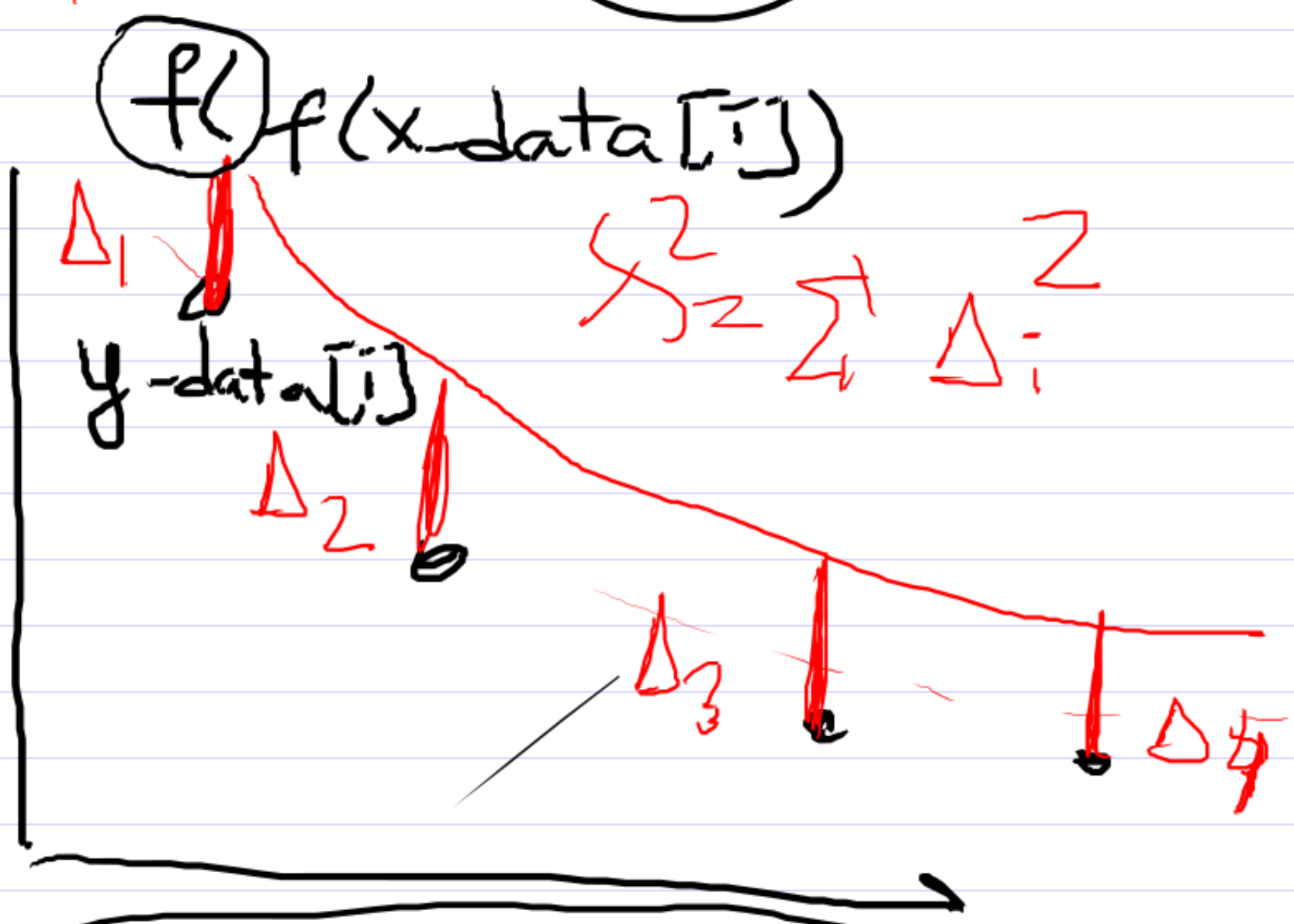


K=0.1

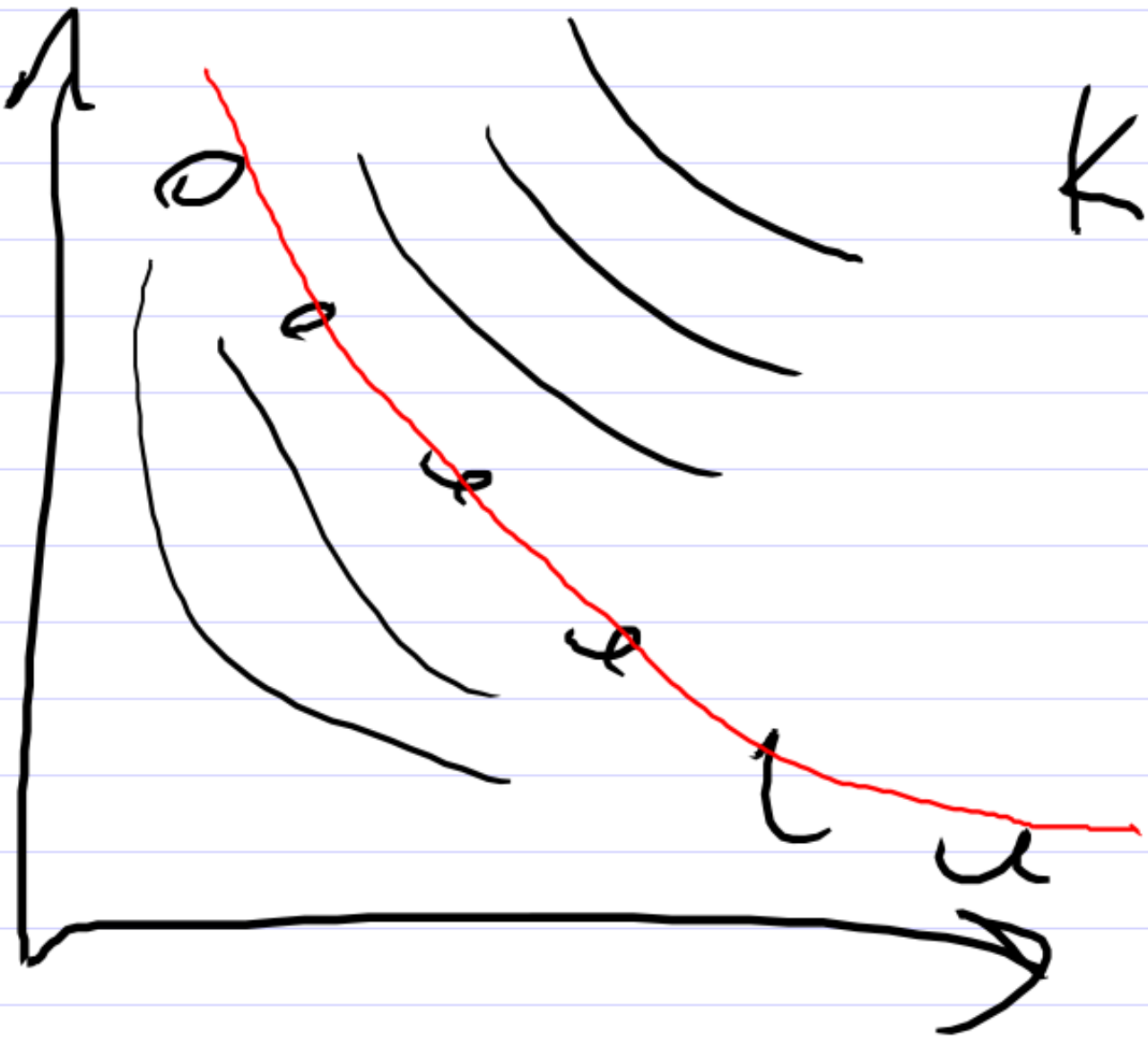
K=0.001

K=0.005

χ^2



$\chi^2 = \sum_i \left(y\text{-data}[i] - f(x\text{-data}[i]) \right)^2$


k = 0
0.01
1
2