A Suggestion

- Consider the model $y = a + e^{bx}$ → (1)

- To estimate the parameters a and b:

- Consider

$$J(a,b) = \frac{1}{n} \sum_{i=1}^{n} \left[y_i - (a + e^{bx_i}) \right]^2 \rightarrow (2)$$

- Differentiate $J(a,b)$ w.r. to a and b and set it to zero:

$$\left.\begin{aligned} \frac{\partial J}{\partial a} &= 0 \\ \frac{\partial J}{\partial b} &= 0 \end{aligned}\right\} \rightarrow (3)$$

- Solve (3), express the estimates for a and b in terms of (x_i, y_i), $1 \le i \le n$

- This is an example of a non-linear least squares regression.