From: Weisstein

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Least Squares Curve Fitting

Exponential Curve:-

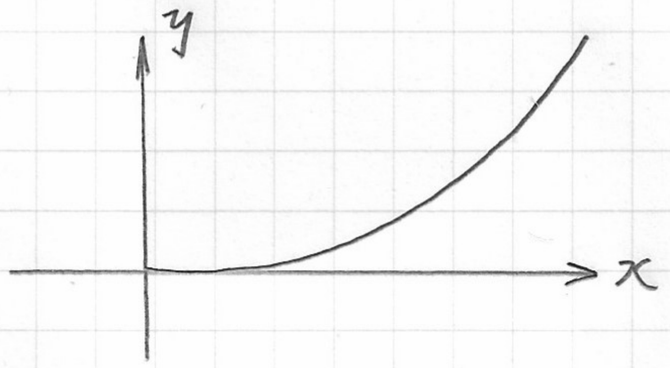
$B = b$

$A = e^a$

$$\boxed{y = Ae^{Bx}}$$

$$a = \frac{\Sigma(x^2y)\cdot\Sigma(y\ln y) - \Sigma(xy)\cdot\Sigma(xy\ln y)}{\Sigma y\,\Sigma(x^2y) - (\Sigma xy)^2}$$

$$b = \frac{\Sigma y\cdot\Sigma(xy\ln y) - \Sigma(xy)\,\Sigma(y\ln y)}{\Sigma y\,\Sigma(x^2y) - (\Sigma xy)^2}$$

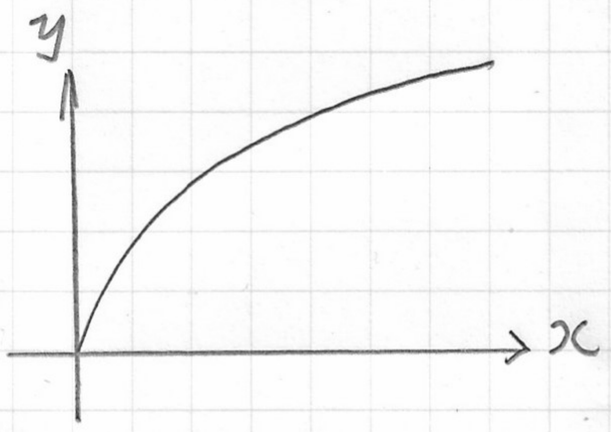


Logarithmic Curve:-

$$\boxed{y = a + b\ln x}$$

$$b = \frac{n\Sigma(y\ln x) - \Sigma y\,\Sigma(\ln x)}{n\Sigma[(\ln x)^2] - [\Sigma(\ln x)]^2}$$

$$a = \frac{\Sigma y - b\Sigma(\ln x)}{n}$$



Power Law:-

$B = b$

$A = e^a$

$$\boxed{y = Ax^B}$$

$$b = \frac{n\Sigma(\ln x\ln y) - \Sigma(\ln x)\,\Sigma(\ln y)}{n\Sigma[(\ln x)^2] - (\Sigma\ln x)^2}$$

$$a = \frac{\Sigma(\ln y) - b\Sigma(\ln x)}{n}$$