$$X \sim \ln N(\mu, \sigma^2)$$

$$Y = \log(X) \sim N(\mu, \sigma^2)$$

$$\sigma^2 \sim \chi^2_{n-1} \quad \mu \sim N\left(\mu, \frac{\sigma^2}{n}\right)$$

pdf of Y $f_Y(x)$

$$\hat{\mu} = \frac{\Sigma_i \log(X_i)}{n} \sim N\left(\mu, \frac{\sigma^2}{n}\right)$$

$$\hat{\sigma}^2 = \frac{\Sigma(\log(X_i) - \hat{\mu})^2}{n} \qquad s^2 -$$

$$Var(\hat{\mu}) = Var\left(\frac{\Sigma_i \log(X_i)}{n}\right)$$

$$= \frac{1}{n^2} \Sigma_i Var(\log(X_i))$$

$$= \frac{1}{n^2} \cdot n (\sigma^2) = \frac{\sigma^2}{n}$$

pdf of $\hat{\mu}$ $\quad f_{\hat{\mu}}(x) = \dfrac{n \ln f_Y(x)}{n} = \ln f_Y(x)$

databases have a max number

memory isn't infinite

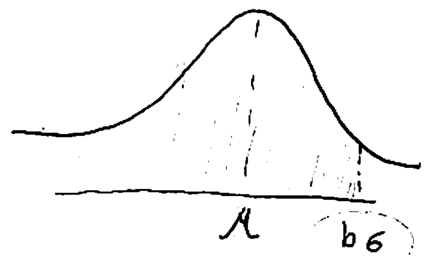
You can't store any real number in a spreadsheet

$\hat{\sigma} \sim \chi^2_{n-1}$

$\hat{\mu} \sim N\left(\mu, \frac{\sigma^2}{n}\right)$

$Y = \hat{\mu} + b\hat{\sigma} \sim \chi^2_{n-1} + b\,N\left(\mu, \frac{\sigma^2}{n}\right)$

distribution of X



distribution of

cdf of $Y = \int \hat{\mu}$

$\mathrm{Var}(\log_n(X)) = \mathbb{E}(\log_n^2 X) - [E(\ln x)]^2$

$=$

in the set vs on the lattice

∞ db

types

o.v., what about over $\mathbb{R}^+$?