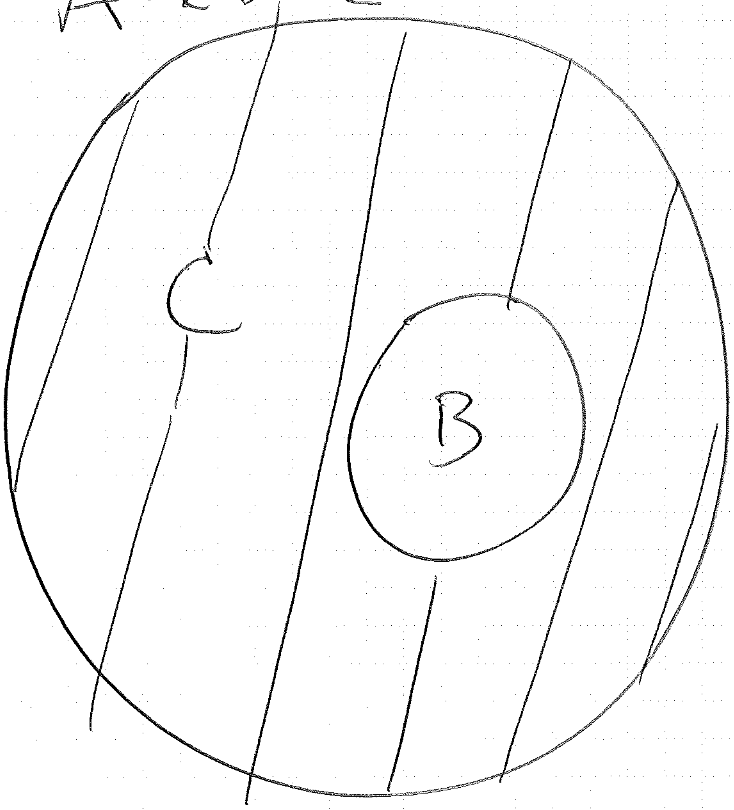
set of Real numbers and functions

$A = \{\mathbb{R}(z), \mathbb{R}(p), \mathbb{R}(f(\theta)), \mathbb{R}(f(\phi))\}$



find X_C

$B \subseteq A$ subset

$C \subseteq A$ subse

$B \in C$ not element

$C \in B$ not element

$$\bar{x} = \sum \frac{x_i}{\sigma_i} \Big/ \sum \frac{1}{\sigma_i^2} = \frac{x_B/\sigma_B^2 + x_C/\sigma_C^2}{1/\sigma_B^2 + 1/\sigma_C^2} \; != x_A$$

$$\sigma_{\bar{x}}^2 = \left(\sum \frac{1}{\sigma_i^2}\right)^{-1} = \frac{1}{1/\sigma_B^2 + 1/\sigma_C^2} \; != \sigma_A^2$$

$x_A, x_B, \sigma_A, \sigma_B$ known $\therefore$ $X_C = \dfrac{x_A/\sigma_A^2 - x_B/\sigma_B^2}{1/\sigma_A^2 - 1/\sigma_B^2}$

$$\equiv \frac{\sigma_B^2 x_A - \sigma_A^2 x_B}{\sigma_B^2 - \sigma_A^2}$$

$$\frac{1}{\sigma_C^2} = \frac{1}{\sigma_A^2} - \frac{1}{\sigma_B^2}$$

$\therefore$ Difference or Accuracy of predicting X_C

$$\underline{X_C - X_B} = \frac{\sigma_B^2 x_A - \sigma_A^2 x_B}{\sigma_B^2 - \sigma_A^2} - \frac{(\sigma_B^2 - \sigma_A^2) x_B}{\sigma_B^2 - \sigma_A^2} = \boxed{\sigma_B^2 \frac{x_A - x_B}{\sigma_B^2 - \sigma_A^2}}$$

stat significance??

$$\frac{X_C - X_B}{\sqrt{\sigma_B^2 + \sigma_C^2}} = \boxed{\frac{x_A - x_B}{\sqrt{\sigma_B^2 - \sigma_A^2}}} \;??$$

Check

This is True