1. Take derivatives to zero to get the minimum.

<MSE> $h(x') = \min \sum_{i=1}^{n} (x - x')^2$

$h'(x') = 0$

$\Rightarrow \sum_{i=1}^{n} (x^2 - 2xx' + x'^2) = 0$

$\sum_{i=1}^{n} (-2x + 2x') = 0$

$\cancel{2} \sum_{i=1}^{n} x = \cancel{2} \sum_{i=1}^{n} x'$

$\sum_{i=1}^{n} x = n x'$

$\Rightarrow x' = \dfrac{\sum_{i=1}^{n} x}{n}$ (average of all x) $= 163.5\,cm$

<MSPE> $h'(x') = \min \sum_{i=1}^{n} \left(\dfrac{x - x'}{x} \right)^2 = 0$

$h(x') = \sum_{i=1}^{n} \left(\dfrac{x^2 - 2xx' + x'^2}{x^2} \right) = \sum_{i=1}^{n} (1 - 2x'x^{-1} + x'^2 x^{-2})$

$\Rightarrow h'(x') = \sum_{i=1}^{n} (-2x^{-1} + 2x'x^{-2}) = 0$

$\sum_{i=1}^{n} (x'x^{-2}) = \sum_{i=1}^{n} x^{-1}$

$x' = \sum_{i=1}^{n} \dfrac{1}{x} \div \sum_{i=1}^{n} \dfrac{1}{x^2}$ (sigma can't combine with product and division)

$\doteqdot 155.42\,cm$