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Pre-labs: dropbox (filing cabinet) BOTTOM drawer (PLO)

"Handcut"  
block



Ruler eg.  $35.6 - 30.0 = 5.6$  cm

Scale: \*Zero\* eg.  $128.7$  g

Sig Figs 62? 102? 20? (PLO)

+/- : least precise eg)  $2.16 + 7.4 = 9.56 = ?$

x/÷ : least sig figs eg)  $2.1 \times 4 = 8.4 = ?$

eg) 
$$\begin{aligned} \text{Area} &= 2LW + 2LH + 2WH = 2 \cdot 16.0 \cdot 8.0 + 2 \cdot 16.0 \cdot 3.9 + 2 \cdot 8.0 \cdot 3.9 \\ &= 256.0 + 124.8 + 62.4 = 260 + 120 + 62 \quad (\text{constant!}) \\ &= 442 = 440 \quad (\text{+ rule}) \\ \therefore \text{Area} &= \underline{4.4 \times 10^2 \text{ cm}^2} \end{aligned}$$

PART D:

## Scaling Laws

(PLO)

(2) volume

$$\frac{V^{\text{big}}}{V^{\text{small}}} \text{ vs. } S_{\text{avg}}^3$$

\* DO NOT \*  
recalculate  $S_{\text{avg}}$ !

(4) area

$$\frac{A^{\text{big}}}{A^{\text{small}}} \text{ vs. } S_{\text{avg}}^2$$

Compare →  
LHS ratio to RHS

(6) area-to-vol

$$\left(\frac{A}{V}\right)^{\text{big}} / \left(\frac{A}{V}\right)^{\text{small}} \text{ vs. } \frac{1}{S_{\text{avg}}}$$

(are they "equal" -  
or "close"?)

Compare (two measured quantities)

$$\% \text{ diff} = \frac{\text{high} - \text{low}}{\text{avg}} \times 100$$

No sigfig rules for  
this calc - just  
round to 1-2 sigfigs!

(PLO)