

Lab 2 : Density - Prelab

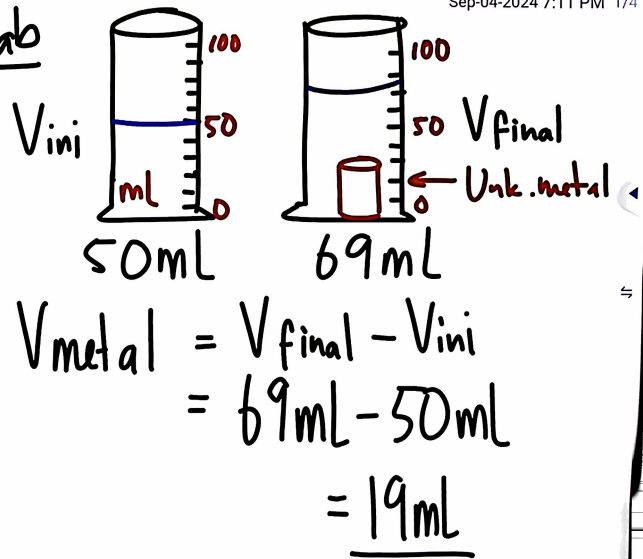
Volume Two Ways

- ① Volume by Difference

V_{ini} : grad. cylinder $\frac{1}{2}$ full

V_{final} : Vol. after metal added

$$V_{metal} = V_{final} - V_{ini}$$



Lab 2 : Density - Prelab

Volume Two Ways

- ② Volume of a cylinder

$$V_{cylinder} = \pi \cdot r^2 \cdot h$$

$[\pi = 3.14]$



Diagram illustrating the volume calculation for a cylinder. The cylinder has a circumference $C = 2.92 \text{ cm}$ and a height $h = 3.00 \text{ cm}$. The radius r is calculated as $r = \frac{2.92 \text{ cm}}{2} = 1.46 \text{ cm}$. The volume V_{cyl} is calculated as $V_{cyl} = \pi \cdot (1.46 \text{ cm})^2 \cdot 3.00 \text{ cm} = 20.09 \text{ cm}^3 (\text{mL})$.

Lab 2: Density - Prelab

Solving For Density

① Need $V_{\text{difference (metal)}}$
 $M_{\text{metal (bal., g)}}$

② Need $V_{\text{metal (handr)}}$
 $M_{\text{metal (bal., g)}}$

Solve for Density ($D = \frac{m}{V}$)

Vol. by Diff.

$$D = \frac{\text{Mass}}{V_{\text{metal (i)}}}$$
$$= \frac{26.3 \text{ g}}{19 \text{ mL}}$$
$$= 1.38 \text{ g/mL}$$

Vol. by measure.

$$D = \frac{\text{mass}}{V_{\text{metal (z)}}$$
$$= \frac{26.3 \text{ g}}{20.09 \text{ mL}}$$
$$= 1.31 \text{ g/mL}$$