

3. The density of molybdenum is 10.2 g/mL. What is the mass of a 0.60 L piece of Mo?  $\rightarrow 600 \text{ mL}$

$$\left(\frac{M}{D \times V}\right) \quad M = D \times V = 10.2 \frac{\text{g}}{\text{mL}} \times 600 \text{ mL} = \underline{6120 \text{ g}}$$

4. 110.9 mL of gadolinium has a mass of 0.875 kg. Calculate the density of gadolinium in units of g/L.  $\leftarrow 0.1109 \text{ L}$   $\rightarrow 875 \text{ g}$

$$D = \frac{M}{V} = \frac{875 \text{ g}}{0.1109 \text{ L}} = \underline{7890 \text{ g/L}}$$

5. The density of tungsten is 19 300 g/L. Find the volume occupied by a 2.0 kg sample of tungsten.  $\rightarrow 2000 \text{ g}$

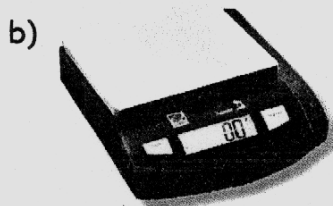
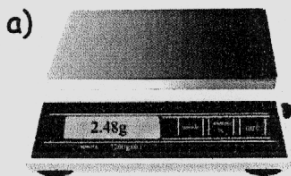
$$V = \frac{M}{D} = \frac{2000 \text{ g}}{19300 \text{ g/L}} = \underline{0.104 \text{ L or } 104 \text{ mL}}$$

6. a) The density of carbon dioxide at standard temperature and pressure is 1.96 g/L. Calculate the mass of a 600 mL sample of carbon dioxide.

$$\rightarrow 0.600 \text{ L} \quad M = D \times V = 1.96 \frac{\text{g}}{\text{L}} \times 0.600 \text{ L} = \underline{1.18 \text{ g}}$$

- b) The density of air is about 1.29 g/L at standard temperature and pressure. Would carbon dioxide tend to rise up or sink down in the atmosphere? Sink ( $\text{CO}_2$  is more dense than air)

7. Of the following balances, which is the most precise?



Answer C. How do you know? reads to the most decimal places (3)

8. What is the uncertainty of balance "a" in question 7?  $\pm 0.01 \text{ g}$

What is the uncertainty of balance "c" in question 7?  $\pm 0.001 \text{ g}$

9. The last digit in any measurement has some uncertainty.

10. The number of certain digits + 1 is called the number of significant digits (figures)