Today 8/27 Finish chapter 1

↳ finish all chapter 1 worksheets and book problems.

Tuesday 8/28 - bring lab manual (no need to read expt before lab)

- lab notebook
- laptop computer
- write intro in lab notebook
- safety glasses not required tomorrow

Tuesday evening: Problem club with Ali 7:00 - 8:30 HLSB 359

1.94b

nutritional calories, 1 Cal = 1000 calories, 1 cal = 4.184 J

$$540\ \text{Calories} \left| \frac{1\ \text{kcal}}{1\ \text{Cal}} \right| \frac{4.184\ \text{kJ}}{1\ \text{kcal}} = \boxed{2.26 \times 10^3\ \text{kJ}}$$

1 Watt = 1 J/s

$$2.26 \times 10^3\ \text{kJ} \left| \frac{1000\ \text{J}}{1\ \text{kJ}} \right| \frac{1\ \text{watt}}{1\ \text{J s}^{-1}} \left| \frac{1\ \text{min}}{60\ \text{s}} \right| \frac{1\ \text{hr}}{60\ \text{min}} \left| \frac{}{100\ \text{watt}} \right. = \boxed{6.3\ \text{hours}}$$

1.52b

convert $8.5\ \text{cm}^3 \rightarrow \text{m}^3$

$$8.5\ \text{cm}^3 \left| \frac{(1 \times 10^{-2})^3\ \text{m}^3}{1^3\ \text{cm}^3} \right| \frac{1^3\ \text{mm}^3}{(1 \times 10^{-3})^3\ \text{m}^3} = \boxed{8.5 \times 10^3\ \text{mm}^3}$$

Aluminum has a density of 2.70 g/cm³. How thick is a 12 in x 18 in sheet of Aluminum with a mass of 5.3 g?

$$5.3\ \text{g} \left| \frac{\text{cm}^3}{2.70\ \text{g}} \right. = 1.96\ \text{cm}^3 = \left(12\ \text{in} \left| \frac{2.54\ \text{cm}}{1\ \text{in}} \right.\right) \times \left(18\ \text{in} \left| \frac{2.54\ \text{cm}}{1\ \text{in}} \right.\right) \times \text{thickness}$$

$$\boxed{\text{thickness} = 0.0014\ \text{cm}}$$

Problems from day 2 worksheet

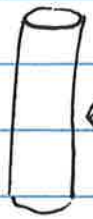
(4) $d_{air} = 1.2\ g/L$ $\quad d = \frac{m}{v}$ so $m = d \cdot v$ $\quad 1mL = 1cm^3$

$$m = d \cdot v = \frac{1.21g}{1L} \left| \frac{1m^3}{1mL} \right| \frac{1\times10^{-3}L}{1cm^3} \left| \frac{1mL}{(1\times10^{-2})^3 m^3} \right| \frac{(1)^3 cm^3}{} = 1.21\times10^3 g$$

(5) $E_K = \frac{1}{2}mv^2$ $\quad 1J = \frac{1\ kg\ m^2}{s^2}$ $\quad m = 145g$

$$E_K = \frac{1}{2} \left| \frac{145g}{1g} \right| \frac{1\times10^{-3}kg}{(s)^2} \left| \frac{(40)^2 m^2}{1\ kg\ m^2} \right| \frac{1\ J\cdot s^2}{1J} \left| \frac{1\times10^{-3}kJ}{} \right| = .116\ kJ$$

(8)



$$\text{diameter} = \frac{0.010\ in}{1in} \left| \frac{2.54cm}{} \right| = 2.54\times10^{-2}cm$$

$$A = \pi r^2 = \pi \left(\frac{2.54\times10^{-2}cm}{2}\right)^2$$

$$A = 5.07\times10^{-4}cm^2$$

$$V = (5.07\times10^{-4}cm^2)(100cm)$$

$$V = 5.07\times10^{-2}cm^3$$

$$d = \frac{0.2722g}{5.07\times10^{-2}cm^3} = \boxed{5.37\ g/cm^3}$$