

AP Chem unit 1 Handout

Ch 1

① The graduated cylinder is not accurate, because the Buret showed a value from 26.51 ml to 26.60 ml and the graduated cylinder always showed a value of 25 ml.

- ② A 3 sig Fig
B 5 sig Fig
C 4 sig Fig

③ 7.00 in = ? cm

$$\left(\frac{7.00 \text{ in}}{1}\right) \left(\frac{2.54 \text{ cm}}{1 \text{ in}}\right) = 17.78 \text{ cm} \Rightarrow \boxed{17.8 \text{ cm}}$$

④ 25.5 in = ? cm

$$\left(\frac{25.5 \text{ in}}{1}\right) \left(\frac{2.54 \text{ cm}}{1 \text{ in}}\right) = 64.77 \text{ cm} \Rightarrow \boxed{64.8 \text{ cm}}$$

⑤ 10.0 km = ? miles

$$\left(\frac{10.0 \text{ km}}{1}\right) \left(\frac{1000 \text{ m}}{1 \text{ km}}\right) \left(\frac{1.094 \text{ yd}}{1 \text{ m}}\right) \left(\frac{1 \text{ mile}}{1760 \text{ yd}}\right) = \boxed{6.22 \text{ miles}}$$

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⑥ $55 \text{ mi/h} = ? \text{ km/hr}$

$$\left(\frac{55 \text{ mile}}{\text{hr}}\right) \left(\frac{1760 \text{ yd}}{1 \text{ mile}}\right) \left(\frac{1 \text{ m}}{1.094 \text{ yd}}\right) \left(\frac{1 \text{ km}}{1000 \text{ m}}\right) = \boxed{88 \text{ km/hr}}$$

⑦ $15 \text{ km/L} = ? \text{ miles/gal}$

$$\left(\frac{15 \text{ km}}{\text{L}}\right) \left(\frac{1000 \text{ m}}{1 \text{ km}}\right) \left(\frac{1.094 \text{ yd}}{1 \text{ m}}\right) \left(\frac{1 \text{ mile}}{1760 \text{ yd}}\right) \left(\frac{3.785 \text{ L}}{1 \text{ gal}}\right) = 35 \text{ miles/gal}$$

⑧ Given:

$$V = 25.00 \text{ cm}^3$$

$$m = 19.625 \text{ g @ } 20^\circ\text{C}$$

Soln: $D = \frac{m}{V}$

$$= \frac{19.625 \text{ g}}{25.00 \text{ cm}^3}$$

$$D = .7850 \text{ g/cm}^3$$

∴ Isopropyl alcohol