

General Chemistry
Mr. MacGillivray
Practice Quiz #4:
Dimensional Analysis II

- Perform each of the following conversions using dimensional analysis.
- You must show work.
- The method used must be dimensional analysis as shown in class and in the text.
- Round answers to the correct number of significant figures.

138 km to cm

$$138 \text{ km} \times \frac{1000 \text{ m}}{1 \text{ km}} \times \frac{100 \text{ cm}}{1 \text{ m}} = 1.38 \times 10^7 \text{ cm}$$

138 cm to km

$$138 \text{ cm} \times \frac{1 \text{ m}}{100 \text{ cm}} \times \frac{1 \text{ km}}{1000 \text{ m}} = 1.38 \times 10^{-3} \text{ km}$$

3.89×10^4 cL to mL

$$3.89 \times 10^4 \text{ cL} \times \frac{1 \text{ L}}{100 \text{ cL}} \times \frac{1000 \text{ mL}}{1 \text{ L}} = 3.89 \times 10^5 \text{ mL}$$

25.7 g/mL to 25.7 kg/mL

$$\frac{25.7 \text{ g}}{\text{mL}} \times \frac{1 \text{ kg}}{1000 \text{ g}} = 2.57 \times 10^{-2} \frac{\text{kg}}{\text{mL}} \text{ or } 0.0257 \frac{\text{kg}}{\text{mL}}$$

25.7 g/mL to g/L

$$\frac{25.7 \text{ g}}{\text{mL}} \times \frac{1000 \text{ mL}}{1 \text{ L}} = 2.57 \times 10^4 \frac{\text{g}}{\text{L}}$$

5.63×10^{-3} mg/s to kg/hr

$$5.63 \times 10^{-3} \frac{\text{mg}}{\text{s}} \times \frac{1 \text{ g}}{1000 \text{ mg}} \times \frac{1 \text{ kg}}{1000 \text{ g}} \times \frac{60 \text{ s}}{1 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr}} = 2.03 \times 10^{-5} \frac{\text{kg}}{\text{hr}}$$