

SIG FIG PROBLEM SET

Name:

PART 1: List how many sig figs there are in the following numbers :

- a) 500 1
- b) 500. 3
- c) 100.1 4
- d) 0.000124 3
- e) 1.2500 5
- f)  $2.100 \times 10^{-4}$  4
- g)  $1.234 \times 10^6$  4

PART 2: Do the following addition/subtractions to the correct number of sig figs. YOU MUST SHOW YOUR WORK!

a)  $12.32 + 0.123 + 124.3 + 13.401$

$$\begin{array}{r} 13.401 \\ 124.3 \\ 0.123 \\ 12.32 \\ \hline 150.144 \end{array} \quad \text{so } 150.1$$

b)  $9.113 - 0.001$

$$\begin{array}{r} 9.113 \\ - 0.001 \\ \hline 9.112 \end{array} \quad \text{so } 9.112$$

c)  $10.00 + 100.$

$$\begin{array}{r} 10.00 \\ 100. \\ \hline 110.00 \end{array} \quad \text{so } 110.$$

d)  $1.212 - 0.1$

$$\begin{array}{r} 1.212 \\ - 0.1 \\ \hline 1.112 \end{array} \quad \text{so } 1.1$$

e)  $1.10 \times 10^{-3} - 9.00 \times 10^{-4}$

$$\begin{array}{r} 0.00110 \\ - 0.000900 \\ \hline 0.000200 \end{array} \quad \text{so } 0.00020 \text{ or } 2.0 \times 10^{-4}$$

f)  $6.1 \times 10^{-3} + 1.1 \times 10^{-2}$

$$\begin{array}{r} 0.0061 \\ + 0.011 \\ \hline 0.0171 \end{array} \quad \text{so } 0.017 \text{ or } 1.7 \times 10^{-2}$$

PART 3: Do the following multiplications/divisions to the correct number of sig figs.

a)  $12 \times 100 = 1 \times 10^3$

b)  $12 \times 100. = 1.2 \times 10^3$

c)  $1.20 \times 101 \times 100 = 1.2 \times 10^4$

c)  $1.20 \times 101 \times 100 = 1 \times 10^4$

d)  $3.13 \times 104 / 2.100 \times 102 = 149 \text{ or } 1.49 \times 10^2$

e)  $(12.04)(9.26) - (58.04)(0.153) =$

$$111.4904 - 8.88012 \Rightarrow - \begin{array}{r} 111.4904 \\ - 8.88012 \\ \hline 102.61028 \end{array} \text{ so } 103$$

f)  $\frac{(125.08 - 120.03)}{(0.00692 - 0.0035)} = \frac{5.05}{0.00342} = 1.5 \times 10^3$

only good to tenths!

g)  $\frac{15.84}{25.2} + \frac{(0.892)(5.624)}{0.1043} = 0.62857... + 48.09787... = 48.7$

Part 4: Unit Conversions: Show all work. Watch the units and sig. figs.

a. A car travels at a speed of 80.00 km/hr.

i. How many hours does it take to travel 450.0 km?

$$80.00 \frac{\text{km}}{\text{hr}} \times t = 450.0 \text{ km} = 5.625 \text{ hr}$$

ii. How many km does the car travel in 81 min?

$$81 \text{ min} \times \frac{1 \text{ hr}}{60 \text{ min}} = 1.35 \text{ hr} \quad 80.00 \frac{\text{km}}{\text{hr}} \times 1.35 \text{ hr} = 108 \text{ km}$$

infinite

b) An unknown metal has a density of 19.34 g/cm<sup>3</sup>. What is the mass of 0.758 cm<sup>3</sup> of gold?

$$D = \frac{m}{V} \quad 19.34 \frac{\text{g}}{\text{cm}^3} \times 0.758 \text{ cm}^3 = 14.6 \text{ g}$$

c) Convert 0.00072 m to  $\mu\text{m}$

$$0.00072 \text{ m} \times \frac{1000000 \mu\text{m}}{1 \text{ m}} = 720 \mu\text{m} = 7.2 \times 10^2 \mu\text{m}$$