

## Phys11 Significant Figures : Worksheet-40

1) Determine the number of sig figs :

- a) 2380 mL \_\_\_\_\_      b) 0.0043 cm \_\_\_\_\_      c) 750. g \_\_\_\_\_  
d)  $6.925 \times 10^{15}$  s \_\_\_\_\_      e) 10465.00 m \_\_\_\_\_      f) 73.2 cm \_\_\_\_\_  
g) 0.0005 kg \_\_\_\_\_      h) 0.4076 g \_\_\_\_\_      i) 60.0 mL \_\_\_\_\_  
j) 60 L \_\_\_\_\_

2) Calculate the following to the correct number of sig-figs. Give answers in scientific notation.

- a)  $19.069 \text{ g} + 5.3049 \text{ g} + 0.04 \text{ g}$  \_\_\_\_\_      b)  $720 \text{ m} + 34 \text{ m}$  \_\_\_\_\_  
c)  $51.87 \text{ s} - 18.6 \text{ s}$  \_\_\_\_\_      d)  $16.08 \text{ h} - 8.1 \text{ h}$  \_\_\_\_\_  
e)  $5350 \text{ km} - 350 \text{ km}$  \_\_\_\_\_      f)  $4.7 \text{ cm} \times 0.5 \text{ s}$  \_\_\_\_\_  
g)  $1.80 \text{ m} \times 269.70 \text{ m}$  \_\_\_\_\_      h)  $5000 \text{ km} \div 5.0 \text{ h}$  \_\_\_\_\_  
i)  $0.00040 \text{ mg} \div 6.81 \text{ mL}$  \_\_\_\_\_      j)  $376.284 \text{ d} \times 0.084 \text{ L}$  \_\_\_\_\_

3) Change to scientific notation :

- a) 13000 cm \_\_\_\_\_      b) 8542000 km \_\_\_\_\_  
c) 0.00590 mm \_\_\_\_\_      d) 0.0000000713 m \_\_\_\_\_

4) The velocity of light has been measured as 299,793,000 m/s.

- a) Give the number of sig figs. \_\_\_\_\_  
b) Express in km/s in decimal notation. \_\_\_\_\_  
c) Give the answer to b) in scientific notation. \_\_\_\_\_  
d) Give a suitable uncertainty. \_\_\_\_\_  
e) If this measurement were given as  $3.00 \times 10^5$  km/s, how many sig figs would it have ? \_\_\_\_\_

5) The number of molecules in 28.00 g of nitrogen molecules is  $6.02 \times 10^{23}$ . This number is called 1 mole or Avogadro's number.

- a) Give the number of sig figs.      i) 28.00 g \_\_\_\_\_      ii)  $6.02 \times 10^{23}$  \_\_\_\_  
b) In scientific notation, 28.00 g = i) \_\_\_\_\_ kg      ii) \_\_\_\_\_ mg.  
c) If you wrote out  $6.02 \times 10^{23}$  in decimal form, how many zeros would come after the 602 ? \_\_\_\_\_

6) The thickness of a page in a book is given as  $0.013 \pm 0.0005$  cm.

- a) Give the number of sig figs \_\_\_\_\_  
b) Give the maximum thickness \_\_\_\_\_  
c) Give the minimum thickness \_\_\_\_\_

7) The mass of a neutron is 0.000 001 675 attograms ( $10^{-18}$  g)

- a) Give the mass in grams. Use scientific notation. \_\_\_\_\_  
b) Give the number of sig figs. \_\_\_\_\_

Answers : 1)a) 3, b) 2, c) 3, d) 4, e) 7, f) 3, g) 1, h) 4, i) 3, j) 1, 2)a)  $2.441 \times 10^1 \text{g}$ , b)  $7.5 \times 10^2 \text{m}$ , c)  $3.33 \times 10^1 \text{s}$ , d) 8.0h ,e)  $5.00 \times 10^3 \text{km}$ , f)  $2 \text{cmxs}$ , g)  $4.85 \times 10^2 \text{m}^2$ , h)  $1. \times 10^3 \text{km/h}$ , i)  $5.9 \times 10^{-5} \text{mg/ml}$ , j)  $3.2 \times 10 \text{dL}$ , 3)a)  $1.3 \times 10^4 \text{cm}$ , b)  $8.542 \times 10^6 \text{km}$ , c)  $5.90 \times 10^{-3} \text{mm}$ , d)  $7.13 \times 10^{-8} \text{m}$ , 4)a) 6, b) 299,793, c)  $2.99793 \times 10^5 \text{ km/s}$ , d)  $5 \times 10^{-1} \text{ km/s}$ , e) 3, 5)a)i) 4, ii) 3, b)i)  $2.800 \times 10^{-2}$ , ii)  $2.800 \times 10^4$ , c) 21, 6)a) 2, b) 0.0135, c) 0.0125, 7)a)  $1.675 \times 10^{-24} \text{g}$ , b) 4.