Scientific Notation and Significant Figures

1. Rewrite the following numbers in standard scientific notation:
   a. 10459000
   b. 340900
   c. 0.05798
   d. 0.0089754
   e. 6701924
   f. 0.00004857

2. Rewrite the following numbers in decimal form:
   a. 3.45×10^{7}
   b. 6.081×10^{-3}
   c. 1.234×10^{-2}
   d. 6.094×10^{-4}
   e. 4.91×10^{3}
   f. 4.567×10^{7}

3. How many significant figures are in each of the following?
   a. 259.6 cm
   b. 3.41×10^{7} nm
   c. 0.0142 g
   d. 1.9140 atm
   e. 5000 J
   f. 22001 J
   g. 3.70 m
   h. 5×10^{3} g
   i. 0.00291 m^3
   j. 0.01020 kg

4. Round off each of the following measurements to three significant figures:
   a. 92.083 cm
   b. 8.3692 m
   c. 0.01552 km
   d. 12499 mm
   e. 1.777×10^{-3} m
   f. 629.55 m
   g. 9009 m
   h. 1803 L

5. Perform each of the following calculations, then round your answer so that it is expressed in the correct number of significant figures.

a. $\frac{3.45 \times 10^6 \text{ g}}{5.78 \times 10^3 \text{ mL}} =$

b. $(4.57 \times 10^4 \text{ m})(3.90 \times 10^3 \text{ m}) =$

c. $0.0124 \text{ L} + 3.56 \text{ L} =$

d. $5310 \text{ m} - 218.4 \text{ m} =$

e. $1.16 \text{ g} + 52 \text{ g} =$

f. $18.1 \text{ kg} - 12.2 \text{ kg} =$

g. $\frac{4.62 \times 10^{-4} \text{ g}}{2.31 \times 10^2 \text{ g}}$

h. $(4.20 \times 10^3 \text{cm})(1.5 \times 10^4 \text{cm}) =$

Metric Conversions & Dimensional Analysis

Solve the following problems using dimensional analysis. You must show your work to receive credit for this worksheet!! Please put your answers in scientific notation when appropriate, and be sure that your answers have the correct number of significant figures!

1. 6.73 km to mm
2. 4.26 mg to cg
3. 3.9 L to mL
4. 5.47 mm to m
5. 925 g to kg
6. 984 cm to mm
7. 1.23 mm to cm
8. 475 kg to g
9. 38.6 in to cm (2.54 cm = 1 in)