

## Unit 1 Worksheet

Name \_\_\_\_\_ Pd \_\_\_\_ No \_\_\_\_

- How many significant figures are there in each of the following values? Underline them.
  - $6.07 \times 10^{-15}$
  - 17.00
  - 463.8052
  - 300
  - 301
  - $3.0 \times 10^{-8}$
- Round each of the following numbers to the indicated number of significant digits and write the answer in scientific notation.
  - 0.00034159 to three digits
  - $103.351 \times 10^2$  to four digits
- Solve the following and write the answer with the appropriate number of significant figures.
  - $212.2 + 26.7 + 402.09$
  - $52.331 + 26.01 - 0.9981$
- Solve the following and write the answer with the appropriate number of significant figures.
  - $2.526/3.1 + 0.470/0.623 + 80.705/0.4326$
  - $(6.404 \times 2.91)/(18.7 - 17.1)$
- Convert the following. Show your work.
  - 8.43 cm to millimeters
  - $2.41 \times 10^2$  cm to meters
  - $1.445 \times 10^4$  m to kilometers
  - 235.3 m to millimeters
- A sample containing 33.42 g of metal pellets is poured into a graduated cylinder initially containing 12.7 mL of water, causing the water level in the cylinder to rise to 21.6 mL. Calculate the density of the metal.
- Diamonds are measured in carats, and 1 carat = 0.200 g. The density of diamond is 3.51 g/mL. What is the volume of a 5.0-carat diamond?

8. Convert the following.

a) 261 nm to mm

b) 642 cg to kg

c) 0.065 km to dm

d)  $8.25 \times 10^2$  cg to ng

9. How long in minutes does it take a photon of light to reach Earth? The distance from Earth to the sun is  $9.3 \times 10^7$  miles. The speed of light is 300,000 km/s.

10. What is the volume (in  $\text{cm}^3$ ) of cough syrup that has a mass of 50.0 g? The density of cough syrup is  $0.950 \text{ g/cm}^3$ .

11. What is the mass (in kg) of 14.0 L of gasoline? Density of gasoline is  $0.680 \text{ g/cm}^3$ .

12. Sea water contains  $8.0 \times 10^{-1}$  cg of Sr per kg of sea water. How many grams of Sr are in  $1 \text{ m}^3$  of sea water? Assume the density of sea water is  $1.0 \text{ g/mL}$ .

13. The density of dry air at  $20^\circ\text{C}$  is  $1.20 \text{ g/L}$ . What is the mass of air (in kg) in a room 25.0 m by 15.0 m by 4.0 m?

14. A 34.5 g gold nugget is dropped into a graduated cylinder containing water. How many mL does the volume increase? Density of Au is  $19.3 \text{ g/cm}^3$ .