

Name: _____

Section: _____

**Chapter 1 Practice Worksheet:
Matter and Measurement**

1) Use metric prefixes to calculate the following conversions:

- a. 156 cm = _____ m
- b. 4.870 km = _____ cm
- c. 7809 mL = _____ ML
- d. 98.412 GL = _____ cL
- e. 1234 μm = _____ m
- f. 675 nm = _____ m
- g. 0.00549 kg = _____ mg

2) How many significant figures are in each of the following measurements?

- a. 0.002960 g _____
- b. 1000.00 g _____
- c. 100,000 g _____
- d. 1.000×10^2 g _____
- e. 1.20980 g _____

3) Write the result of each calculation. Remember to include units and the correct number of significant figures.

- a. $(200.5 \text{ m} + 2.59 \text{ m}) \times 60.7 \text{ m} =$
- b. $(3.3 \times 10^{-4} \text{ g}) \div (9.9 \times 10^{-5} \text{ mL}) =$
- c. $(1.0 \times 10^5 \text{ s}) \times (15.0 \text{ m/s}) =$
- d. $(25.8 \text{ g}) \div (2.00 \text{ g/mL}) =$
- e. $153.6789 \text{ g} - 42.3409 \text{ g} =$

4) Temperature Conversions:

- a. Room temperature is about 25 °C. What is this temperature in units of Kelvin?

- b. The temperature at which carbon dioxide sublimates is about 195 K. What is this temperature in units of degrees Celsius?

- c. Which of the following temperatures is/are impossible? 0 K is the lowest possible temperature that can be obtained.

4000 K 4000 °C -200 K -200 °C -400 °C

Name: _____

Section: _____

5) Unit Conversions:

- a. Convert 10.0 miles/hour to meters/second. Use the conversion factors given in the text.

- b. Convert 5.0 cm^3 to L.

- c. Convert 3.0 cm^3 to mm^3 . Watch the cubed units.

6) Given that the density of olive oil is 0.92 g/mL , calculate the following:

- a. The mass of 20.0 mL of olive oil.

- b. The volume of 20.0 g of olive oil.

7) Which of the following metals will occupy the largest volume per gram of metal? (Hint: Is this asking for the least dense or most dense material?)

Gold	$d = 19.3 \text{ g/cm}^3$
Mercury	$d = 13.55 \text{ g/cm}^3$
Lead	$d = 11.3 \text{ g/cm}^3$

8) What is the difference between accuracy and precision? Provide examples.

9) If your car uses 22 miles per gallon and you go on a 400-mile road trip, how much gas do you need. If your tank is 16 gallons, how many times do you have to fill up. If gas costs $\$3.27/\text{gallon}$, how much did you spend on gas (assuming you bought just enough to reach your destination)?

Name: _____

Section: _____

10) A package of aluminum foil contains 100.0 ft^2 of product and weighs exactly 1.1 lb. The density of aluminum foil is 2.70 g/cm^3 . Find the thickness of the aluminum foil in millimeters. (1 lb = 453.6 g)