DIMENSIONAL ANALYSIS (DA) PRACTICE 2

from Bauck and www.ChemCom.com

DIRECTIONS: Solve each problem using dimensional analysis. Every number must have a unit. Show all work. Watch the sig.figs.

CONVERSION FACTORS	
264.2 gal = 1 m^3	1 mol = 6.02 x 10^{23} particles
1 mi = 5280 ft	1 mol = (atomic mass) g
1 L = 0.2642 gal	1 mol = 22.4 L for a gas at STP
0.625 mi = 1.00 km	12 drops = 1 mL = 1 cc

1.) How many miles will a person run during a 10.0 kilometer race?

2.) The moon is approximately 250,000 miles away. How many feet is it from earth?

3.) A family pool holds exactly 1000 gallons of water. How many cubic meters is this?

4.) If a high school student is in class 450 minutes per day….
How many hours per day is this? How many seconds per day is this?

5) How many seconds are there in exactly 25 years?

6) Lake Michigan holds 1.3 x 10^{15} gallons of water. How many liters does it contain?

7) Pepsi puts 355 mL of soda in a can.
How many drops is this? How many cubic centimeters (cc) is this?

8) Change 60.0 miles/hour to ft/sec.

9) You are planning a party for Saturday night, and you expect 30 people to attend. You estimate that each person may drink 4 sodas, eat 1/4 of a large bag of chips, and eat 1/3 of a pizza. How much soda, chips and pizza should you buy?

10) Convert 197.00 g of zinc to moles of zinc. (From the periodic table, 65.4 g Zn = 1 mol Zn).

11) How many atoms of uranium are found in 0.88 mol of uranium?

12) Calculate the amount of liters of radon gas that 1.222 mol would occupy under STP conditions.