**Chemistry A Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Period\_\_\_\_\_**

**Problem Solving Factor Label Method**

1.                  Calculate the number of minutes in the entire month of September

2.                  A sign in a town gives the speed limit at 50 km/hr.  What is this speed in centimeters per second?

3.                  A chemistry instructor provides each student with 8 test tubes at the beginning of the school year.  If there are 28 students per class, how many test tubes are required for three chemistry classes?

4.                  Near a lake on an old building a sign reads, “Rowboats for rent, $1.75 per half-hour.”  What will it cost to rent a rowboat for five hours?

5.                  In your favorite restaurant, a sandwich you like costs $1.25.  If you order two sandwiches, how many quarters must you pay?  How many dimes?

6.                  What is the cost in dollars for the nails used to build a fence 125 meters long if it requires 20 nails per meter?  Assume that 40 nails are sold per box at a cost of 75 cents per box.

7.                  At a meeting, 28 people are each given 3 pens.  If there are 8 pens in one package, priced at $1.88 per package, what is the total cost of giving away pens?

8.                  An object is traveling at a speed of 7500 centimeters per second.  Convert the value to kilometers per minute.

# Factor Label Problems

# Solve the following problems using the factor-Label method

1. Many candy bars have 9 G of fat per bar. If during a "chocolate attack" you ate one pack of candy (0.6 dekabars), how many ounces of fat would you have eaten? There are approximately 9 Calories per gram of fat, how many Calories is this?

2. Pepsi puts 355 ml of pop in a can. How many drops is this? How many cubic meters is this?

3. Lake Michigan holds 1.3 x 1015 gallons of water. If just Chicago removed water from the lake and it never rained again, how many days would the water last? Chicago uses 1.2 x 109 gallons of water /day

4. Recently, Dr. Louis Frank has suggested that Earth may be pelted by thousands of house-sized comets. Satellite imagery has been inconclusive, and the idea remains controversial. When Frank first considered the idea of mini-comets falling to Earth, he no doubt scrambled to make a quick Dimensional Analysis calculation. Comets can be thought of as dirty snowballs - maybe Earth's oceans have accumulated from these comets over the ages! Use the following information to estimate what percent of Earth's oceans could be accounted for given a constant bombardment by comets over the last 4 billion years (the estimated age of the earth). You will need the following information:

 Each mini-comet contains about 30 tons of water

* 1 ton = 2000 pounds
* 1 pound = 454 grams
* density of water is 1 g/cm3
* 15,000 mini-comets hit the Earth each day
* Earth's oceans occupy 1.36 billion km3