

Name: _____ Period: _____ Date: _____

Dimensional Analysis

These are practice problems to be done in class to teach dimensional analysis problem solving. It is suggested that the first three are done with the students to model the process. Then have the students do the next five on their own or as group within a time limit.

1. The record long jump is 349.5 inches. Convert this to meters. There are 2.54 centimeters in an inch.
2. How many milligrams are there in a 5.00 grain aspirin tablet? [1 grain = 0.00229 oz; 454 g = 1 lb; 16.0 oz = 1 lb]
3. A car is traveling 65.0 miles per hour. Convert this to meters per second. One mile is equal to 1.61 kilometers.
4. A 2008 Mustang GT has a 4.6 L engine. What is this volume in cubic inches?
5. Mercury has a density of 13.54 g/mL. How many milliliters would 100. grams occupy?
6. What is the mass in grams of 275 L of seawater if the density is 1.025 g/cm³?
7. In 1980, the US produced 18.4 billion (10⁹) pounds of phosphoric acid to be used in the manufacture of fertilizer. The average cost of the acid is \$318/ton. (1 ton = 2000lb) What was the total value of the phosphoric acid produced?
8. What is the mass of a rectangular solid piece of brass that measures 4.95 cm by 2.45 cm by 1.26 cm and has a density of 8.40 g/cm³?