Name _____ Date _____

Review Sheet – Quantitative Chemistry

1. Express each of the following numbers in *standard* scientific notation.

   a. 12,300

   b. 0.0987

   c. 0.5102

   d. 5.0

   e. 0.0000000564

   f. 98,798,000,000,000

2. Express each of the following as an ordinary decimal number.

   a. 9.88×10^{-2}

   b. 4.683×10^{-5}

   c. 1.1×10^{9}

   d. 4.0×10^{1}

   e. 7.536×10^{-3}

   f. 6.31×10^{4}

3. Calculate the following. Be sure to use significant figures.

   a. 87,934.2 + 234,000.00 =

   b. $(2.3 \times 10^{2})(4.99 \times 10^{-12}) =$

   c. $\dfrac{(9.82 \times 10^{3})}{(8.743 \times 10^{-4})} =$

4. Convert the following (a-e) by using fence posting. Use significant figures, and show your work.

   a. 60 cm = _____ km

   b. 0.36 kg = _____ lb

   c. 55 mL = _____ gal

d. 12.2 g = _____ oz

e. 9.5 ft^2 = _____ mm^2

For problems 5-9, be sure to show all of your work, and circle your answer. Use significant figures.

5. Some jobs require you to be able to lift 60 lbs. If a case of soup contains 24 cans, and each can weighs 298 g, how many cases of soup must you be able to lift?

6. A nickel weighs about 5000 mg. What is the value in dollars of 4 kg of nickels?

7. If you run at a speed of 6.5 yd/s, how fast in miles per hour are you going?

8. A metal bolt weighs 0.0523 kg. When it is placed in a graduated cylinder, the water level rises from 23.6 mL to 29.1 mL. Calculate the density of the substance in g/cm^3.

9. A sample of sand with a density of 1.45 g/cm^3 is poured into a box and completely fills it. The dimensions of the box are 2.0 ft x 1.5 ft x 1.0 ft. Calculate the mass of the sand.