Name _____   Period _____

Math for Chemistry Classes

Part I: How many significant digits are there in the following measurements:

a) 23 cm   _____   g) 107 mm   _____

b) 500 m   _____   h) 0.2338 km   _____

c) 500. m   _____   i) 8.035 cm   _____

d) 9.855 mL   _____   j) 0.05587 L   _____

e) 76.414 kg   _____   k) 0.001 m   _____

f) 32.8 m   _____   l) 1001 g   _____

Part II: Write the following numbers in scientific notation:

a) 10,000   _____   f) 0.0 000 043   _____

b) 0.0 001   _____   g) 45, 857   _____

c) 0.000 008   _____   h) 36, 000   _____

d) 700   _____   i) 80.35   _____

e) 47, 000   _____   j) 0.00 000 007   _____

Part III: Perform the following calculations without using a calculator. Answers must be expressed in scientific notation expressed to the correct number of significant digits.

a) $10^4 \times 10^2$ _____

b) $10^{-3} \times 10^6$ _____

c) $10^9 / 10^6$ _____

d) $10^2 / 10^7$ _____

e) $10^{-4} \times 10^9$ _____

f) $(2.50 \times 10^2) \times (2.00 \times 10^3)$ _____

g) $(5.0 \times 10^4) \times (7.00 \times 10^5)$ _____

h) $(2.50 \times 10^{-2}) / (1.25 \times 10^7)$ _____

i) $(2.00 \times 10^4) / (4.00 \times 10^8)$ _____

j) $(5.0 \times 10^7) \times (3.00 \times 10^4)$ _____

Part V: Algebra One! Solve the following equations for x. Show all of your steps.

a) $4x = 30$ c) $5x + 7 = 2x + 13$ e) $35/x = 7$

b) $4 - 7x = 25$ d) $3x + 8 = 29$ f) $x^2 + 4 = 40$

Part VI: Solve the following math problems. You must show your work and use significant figures and units in your answers. Show the original algebraic formula that you use to solve the problem. Some basic geometric formulas will be used.

1) What is the area of a rectangle whose sides are 7.50 cm and 15.50 cm?

1) _____

2) A cube has a side of 2.5 cm. What is the volume of the cube?

2) _____

3) A circle has a radius of 4.25 m. What is the circumference of the circle?

3) _____

4) A circle has a radius of 4.25 m. What is the area of the circle?

4) _____

5) What is the sum of 5.0 g and 9.28 g?

5) _____

6) What is the difference between 15.000 mL and 7.38 mL?

6) _____