Chemistry Level 1
Mid-Year Exam (2008-2009)
Review Homework

1. Willy the Wild Worm needs to see his girlfriend who lives 24.5 meters away. If he wiggle at 4.5 cm/s, how long will it take him to get to his girlfriend (in hours)?

2. Jasper, the Curious Cat jumped onto a metal table top. The table top is rectangular and has a length of 2.00cm and 0.450 m wide. How thick (in cm) is the table top if the density of the metal is 5.56g/cm^3 and the table top has mass of 25.0g?

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3. Balance the following chemical reaction and write the type of chemical reaction in the appropriate blank.

a. ___ $Pb(NO_3)_{2\,(aq)}$ + ___ $KI_{(aq)}$ → ___ $PbI_{2\,(s)}$ + ___ $KNO_{3\,(aq)}$

b. ___ $KClO_{3\,(s)}$ → ___ $KCl_{(s)}$ + ___ $O_{2\,(g)}$

c. ___ $C_7H_{14\,(l)}$ + ___ $O_{2\,(g)}$ → ___ $CO_{2\,(g)}$ + ___ $H_2O_{(g)}$

4. Principal Stephens was watching fireworks during 4th of July. Since he remembers his high school chemistry, he wanted to know how much energy was released when the electron jumps back down to the ground to produce the **BLUE** colored fireworks. (Use your book for the appropriate wavelength)?

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5. Dr. Evil (and mini-me) tried to create a bomb that would blow up the world. They figured that the bomb must contain carbon dioxide, sulfur hexafluoride, and nitrate ions. As a part of your pH.D (doctorate) in Evil, you need to help so Dr. Evil asked you to show below the Lewis Dot Strucutures of these species.

6. The New England Patriots wanted to have a large "Pats" balloon at Gillette Stadium for the game. If they want the balloon to have a volume of 452 liters, what mass of carbon dioxide do you need to add to the balloon? (Assume STP)

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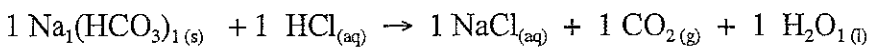
7. When the Patriot's ground crew looked for the carbon dioxide (in Question 6), they could not find any. So they needed to generate this compound themselves. One of the crew had made homemade soda in the high school chemistry class, so they used the following equation to create the carbon dioxide.



$$1\ Na_1(HCO_3)_{1\,(s)} + 1\ HCl_{(aq)} \rightarrow 1\ NaCl_{(aq)} + 1\ CO_{2\,(g)} + 1\ H_2O_{1\,(l)}$$

How many grams of sodium bicarbonate do the grounds crew need to react to blow up the balloon with the same volume as in Question 6 (filled with CO_2)?

8. Give the electron configuration for the following:

a. Chromium

b. Lead

c. Silver

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9. Give the following chemical formula or chemical name for the following:

   a. $Cu_1(CO_3)_{1\,(aq)}$

   b. Tin (IV) carbonate

   c. $Al_1(SO_3)_{2\,(aq)}$

   d. S_4P_6

10. For the following reactants, please provide the following

a. For single replacement reaction
If the reaction does not occur, please give a one sentence explanation of why it does not.
If the reaction does occur, please give a balanced complete chemical reaction including phases of reactants and products. Then show all work to determine the net ionic reaction.

b. For double replacement reactions (only for solid formation)
If the reaction does not occur, determine the potential products and phases and show all work to get the net ionic reaction to show that the reaction does not occur .
If the reaction does occur, please give a balanced complete chemical reaction including phases of reactants and products. Then show all work to determine the net ionic reaction.

a. $Ba_1(C_2H_3O_2)_{2\,(aq)} + K_2(SO_4)_{1(aq)} \rightarrow$

b. $Ca_{(s)} + Al(NO_3)_{3\,(aq)} \rightarrow$