Name_____

TA Name _____

Lab Section #_____

Here are some extra problems to practice on similar to those in ICPS7

1. How many protons and electrons in each of the following?

		Protons	Electrons
a)	Er	_____	_____
b)	Cu^{2+}	_____	_____
c)	S^{2-}	_____	_____

2. How many protons, neutrons and electrons in each of the following?

		Protons	neutrons	electron
a)	$^{48}_{22}Ti$	_____	_____	_____
b)	$^{60}_{28}Ni^{2+}$	_____	_____	_____

3. Complete the following table.

Symbol	# protons	# neutrons	# electrons	charge
$^{81}_{35}Br^{-1}$				
	20	41		+2
Cs		77		+1
		75	54	2-

4. Express each of the following as either a decimal number or in standard scientific notation.

a) 4,320

b) 1.20×10^4

c) 7.99×10^{-8}

d) 602,300,000,000,000,000,000,000

e) 0.000000234

e) 13.13

5. Perform the following operations and report your answer in exponential notation.

a) $(1.78 \times 10^{-6})(4.01 \times 10^3) =$

b) $(5.62 \times 10^{-5})(2.91 \times 10^8) =$

c) $\dfrac{2.39 \times 10^{-3}}{(7.26 \times 10^{-5})} =$
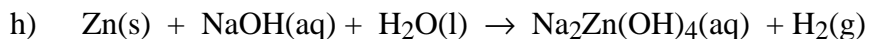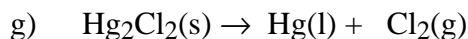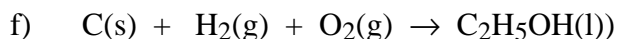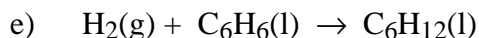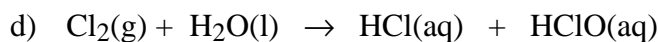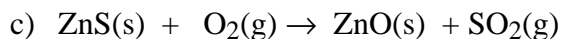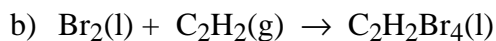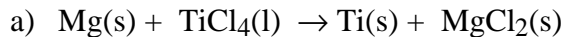
d) $\dfrac{8.45 \times 10^{-2}}{6.12} =$

e) $(1.31 \times 10^5) - (1.04 \times 10^4) =$

f) $(3.86 \times 10^{-3}) - (4.29 \times 10^{-2}) =$

g) $(4.25 \times 10^{-11}) + (2.56 \times 10^{-7}) =$

h) $(7.33 \times 10^5) + (5.18 \times 10^4) =$

6. Balance each of the following equations

   a) $Mg(s) + TiCl_4(l) \rightarrow Ti(s) + MgCl_2(s)$

   b) $Br_2(l) + C_2H_2(g) \rightarrow C_2H_2Br_4(l)$

   c) $ZnS(s) + O_2(g) \rightarrow ZnO(s) + SO_2(g)$

   d) $Cl_2(g) + H_2O(l) \rightarrow HCl(aq) + HClO(aq)$

   e) $H_2(g) + C_6H_6(l) \rightarrow C_6H_{12}(l)$

   f) $C(s) + H_2(g) + O_2(g) \rightarrow C_2H_5OH(l))$

   g) $Hg_2Cl_2(s) \rightarrow Hg(l) + Cl_2(g)$

   h) $Zn(s) + NaOH(aq) + H_2O(l) \rightarrow Na_2Zn(OH)_4(aq) + H_2(g)$

7. Write and balance the equation for each of the following

   c) A formation equation for ZnO.

   d) A formation equation for CO_2.

   e) A formation equation for HCL.

   f) The reaction for the combustion of propane (C_5H_{12}).

8. Calculate the number of atoms in each of the following;

   a) 1.00 g helium
   (note the mass of a helium atom
   is 6.645 x 10^{-24} g)

   b) 17.0 g Na atoms
   (note the mass of a sodium atom
   is 3.821 x 10^{-23} g)

9. Calculate the number of atoms in each of the following; (Use Avogadro's number to solve these problems.)

a) 2.73 x 10^{-2} g carbon

b) 5.0397 g silicon

c) 125 g gold

d) 1.5 mol Mg

e) 8.12 x 10^2 mol iron

f) 75 g Al

10. Calculate the mass in each of the following;
a) 1.04 x 10^3 mol Kr

b) 5.92 x 10^{22} atoms titanium

c) 1.78 mol CO_2

d) 0.0710 mol C_2H_6