Name: **Period:**   **Seat#:**

Directions: Any worksheet that is labeled with an * means it is suggested extra practice. We do not always have time to assign every possible worksheet that would be good practice for you to do. You can do this worksheet when you have extra time, when you finish something early, or to help you study for a quiz or a test. If and when you choose to do this Extra Practice worksheet, please do the work on binder paper. You will include this paper stapled into your Rainbow Packet when you turn it in, even if you didn't do any of this. We want to make sure we keep it where it belongs so you can do it later if you want to (or need to). If you did the work on binder paper you can include that in your Rainbow Packet after this worksheet. If we end up with extra class time then portions of this may turn into required work. If that happens you will be told which problems are turned into required. Remember there is tons of other extra practice on the class website…and the entire internet! See me if you need help finding practice on a topic you are struggling with.

- **Show work for ANY math problem AND include ALL units.**
- **Use a SINGLE DIMENSIONAL ANALYSIS line method set ups for ALL conversions.**

1) _____LiOH +_____HBr → _____LiBr +_____H_2O [unbalanced]
If you start with 10 g of lithium hydroxide, how many grams of lithium bromide will be produced?

2) _____C_2H_4 +_____O_2 → _____CO_2 +_____H_2O [unbalanced]
If you start with 45 grams of ethylene (C_2H_4), how many grams of carbon dioxide will be produced?

3) _____LiCl +_____CaF_2 → _____LiF +_____$CaCl_2$ [unbalanced]
If you start with 5.5 grams of lithium chloride, how many grams of calcium chloride will be produced?

4) _____HCl +_____Na_2SO_4 → _____NaCl +_____H_2SO_4 [unbalanced]
If you start with 20 grams of hydrochloric acid, how many grams of sulfuric acid will be produced?
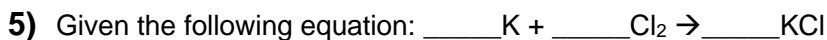
5) Given the following equation: _____K + _____Cl_2 → _____KCl
How many grams of KCl is produced from 2.50 g of K and excess Cl_2. From 1.00 g of Cl_2?

6) Given the following equation: _____Na_2O + _____H_2O → _____NaOH
How many grams of NaOH is produced from 1.20×10^2 grams of Na_2O?
How many grams of Na_2O are required to produce 1.60×10^2 grams of NaOH?
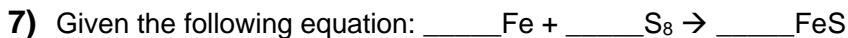
7) Given the following equation: _____Fe + _____S_8 → _____FeS
What mass of iron is needed to react with 16.0 grams of sulfur? How many grams of FeS are produced?
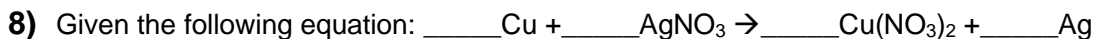
8) Given the following equation: _____Cu +_____$AgNO_3$ → _____$Cu(NO_3)_2$ +_____Ag
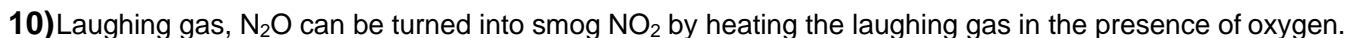How many moles of Cu are needed to react with 3.50 moles of $AgNO_3$?
If 89.5 grams of Ag were produced, how many grams of Cu reacted?
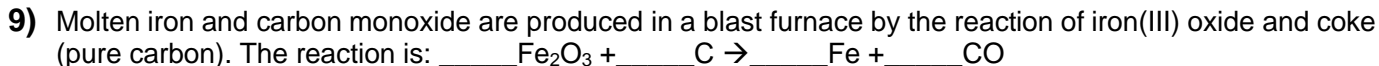
9) Molten iron and carbon monoxide are produced in a blast furnace by the reaction of iron(III) oxide and coke (pure carbon). The reaction is: _____Fe_2O_3 +_____C → _____Fe +_____CO
If 25.0 kilograms of pure Fe_2O_3 is used, how many kilograms of iron can be produced?

10) Laughing gas, N_2O can be turned into smog NO_2 by heating the laughing gas in the presence of oxygen.
_____N_2O + _____O_2 → _____NO_2 If 9.00 grams of laughing gas react. How many moles of oxygen react?
If 7.50 grams of oxygen react, how many grams of smog are produced?

11) The acid in your stomach that aids in breaking down proteins is called hydrochloric acid, HCl. Occasionally the glands that produce the HCl make more than is needed and you get those nasty sour burps. You can neutralize the excess acid by taking milk of magnesia. The active ingredient in milk of magnesia is $Mg(OH)_2$. Reaction is. _____HCl +_____$Mg(OH)_2$ → _____$MgCl_2$ + _____H_2O
If you drink 2.00 grams of $Mg(OH)_2$, how many moles of HCl are neutralized by reacting with the $Mg(OH)_2$ to make your products?

12) Silver sulfide (Ag_2S) is the common tarnish on silver objects. What weight of silver sulfide can be made from 1.23 mg of hydrogen sulfide (H_2S) obtained from a rotten egg? The reaction of formation of silver sulfide is:
_____Ag(s) +_____H_2S(g) +_____O_2(g) → _____Ag_2S(s) +_____H_2O(l)
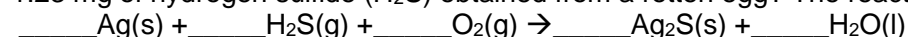
13) A somewhat antiquated method for preparing chlorine gas involves heating hydrochloric acid with pyrolusite (manganese dioxide), a common manganese ore. (Reaction given below.)
How many kg of HCl react with 5.69 kg of manganese dioxide?
_____ HCl(aq) + _____ MnO_2(s) → _____ H_2O(l) + _____ $MnCl_2$ (aq) + _____ Cl_2(g)

14) Molten iron and carbon monoxide are produced in a blast furnace by the reaction of iron(III) oxide and coke (pure carbon). If 25.0 kilograms of pure Fe_2O_3 is used, how many kilograms of iron can be produced? The reaction is: _____ Fe_2O_3 + _____ C → _____ Fe + _____ CO

15) 20.0 g of silver (I) nitrate is reacted with an excess of sodium chloride to produce silver(I) chloride.
What mass of silver(I) chloride is produced? $AgNO_3$ + NaCl → AgCl + $NaNO_3$ [Balanced]

16) 60.4 g of HCL is mixed with 56.1 g NaOH to produce water and table salt.
What mass of NaCl is produced?   HCl + NaOH → H_2O + NaCl   [Balanced]

17) How many grams of chlorine can be liberated from the decomposition of 64.0 g. of $AuCl_3$ by
this reaction: _____ $AuCl_3$ → _____ Au + _____ Cl_2 [Unbalanced]

18) Calculate the mass of AgCl that can be prepared from 200. g of $AlCl_3$ and sufficient $AgNO_3$, using this
equation: _____ $AgNO_3$ + _____ $AlCl_3$ → _____ AgCl + _____ $Al(NO_3)_3$ [Unbalanced]

19) Given this equation: _____ KI + _____ $Pb(NO_3)_2$ → _____ PbI_2 + _____ KNO_3 [Unbalanced] Calculate
mass of PbI_2 produced by reacting of 30.0 g KI with excess $Pb(NO_3)_2$

20) How many grams of $AuCl_3$ can be made from 100.0 grams of chlorine by
this reaction: _____ Au + _____ Cl_2 → _____ $AuCl_3$ [Unbalanced]

21) How many grams of Na are required to react completely with 75.0 grams of chlorine using this reaction:
_____ Na + _____ Cl_2 → _____ NaCl   [Unbalanced]

22) Propane (C_3H_8) is burned. If I start with 5.0 grams of C_3H_8, what is my theoretical yield of water?
I got a percent yield of 75% How many grams of water did I make?

23) Beryllium + hydrochloric Acid. My theoretical yield of beryllium chloride was 10.7 grams. If my actual yield was 4.5 grams, what was my percent yield?

24) Sodium Chloride + Calcium Oxide. Find theoretical yield of sodium oxide, starting with 20.0g calcium oxide?

25) Iron (II) Bromide + Potassium Chloride. What is my theoretical yield of iron (II) chloride if I start with 34.0 grams of iron (II) bromide? What is my percent yield of iron (II) chloride if my actual yield is 4.0 grams?

26) TiS + H_2O →   What is my percent yield of titanium (II) oxide if I start with 20.0 grams of titanium (II) sulfide and my actual yield of titanium (II) oxide is 22.0 grams?

27) _____ U + _____ Br_2 → _____ UBr_6 [unbalanced]   What is my actual yield of uranium hexabromide if I start with 100.0 grams of uranium and get a percent yield of 83%?

28) H_2SO_4 → H_2O + SO_3 [Balanced]
If I start with 89 grams of sulfuric acid and produce 7.1 grams of water, what is my percent yield?

Practice Tests
These have not been checked, please let me know if you see any typos!