Summer Review   Station 1
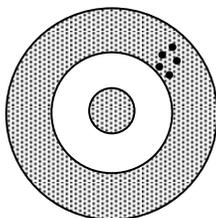
(Ch 1)-MEASUREMENTS

Write in the number of significant figures for each of the following measurements:

___   3.00 mL   ___   0.00290 g   ___   50.00 m   ___   0.070 kg   ___   400 L

Combine the masses 0.0562 kg, 124.213 g and 1635 mg. The answer should be reported as: _____ g

A 5.75 mL sample of mercury has a measured mass of 77.05 g. The density is _____

Mercury's accepted density is 13.53 g·mL^{-1}. The % error in your measurement is: _____

Is this person accurate? _____   Is the person precise? ___

Summer Review   Station 2

(Ch 1)-MATTER

This molecule contains ____ elements and ____ atoms.

The molecular formula for this substance is: _____

Calculate the number of seconds in 5.25 years using unit analysis: (1 year = 365.25 days)

A **calculator** displays the answer to a problem as **53.29841**
Report this answer to:

_____   5 significant figures

_____   3 significant figures

_____   1 significant figure

Calculate the molar mass of $Ba(NO_3)_2$.

Calculate the percent composition of each element in the following compound.

$Ba(NO_3)_2$	Ba = ———— =	N = ———— =	O = ———— =

Write the formula for ionic compounds made from these ions:

Name	Cation	Anion	Formula
sodium phosphate			
stannic chloride			
aluminum hydroxide			
ammonium sulfate			

Solve the following mole problems:

How many molecules of CO_2 (MM = 44.0 g/mol) are in 17.75 grams of CO_2?

What volume (in Liters) does 20.0 grams of butane, C_4H_{10}, occupy at STP? (MM C_4H_{10} = 58.14 g/mol)

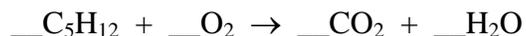| List the 7 diatomic elements:							

Balance these equations and classify their type (single replacement, double replacement, etc.)

__C_5H_{12} + __O_2 → __CO_2 + __H_2O Classify this reaction: _____

__H_2O_2 → __H_2O + __O_2 Classify this reaction: _____

__$AgNO_3$ + __K_2CO_3 → __Ag_2CO_3 + __KNO_3 Classify this reaction: _____

Consider the balanced equation: $N_2(g)$ + 3 $H_2(g)$ → 2 $NH_3(g)$
            molar masses: (28.02)   (2.02)   (17.04)
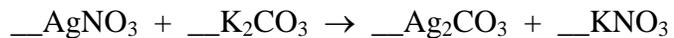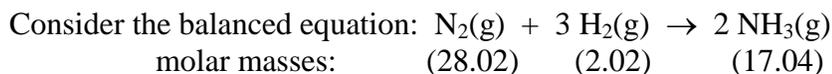
How many grams of $NH_3(g)$ is formed when 12.80 grams of $H_2(g)$ reacts with 55.25 grams of $N_2(g)$?

Empirical Formulas:
A substance is 33.33% carbon, 7.47% hydrogen, and 59.20% oxygen.
What is its empirical formula? _____

Summer Review   Station 7

Circle the **precipitates**:	PbI_2	$Ba(OH)_2$	Ag_2CO_3	CaF_2	K_2SO_3	$(NH_4)_2S$

List the **strong acids**:								

Write the balanced molecular, ionic, and net ionic equation for:
> *Solutions of acetic acid and sodium nitrite are mixed.*

Summer Review   Station 8

Write the balanced net ionic equation for:
> *Aluminum metal is added to a solution of silver nitrate.*

What substance is being **oxidized**? _____   Which **atom** is being **reduced**? _____

What is the **oxidizing agent**? _____

What is the **oxidation number** of N in the nitrate ion, $\underline{N}O_3^-$

Summer Review   Station 9

When solutions of NaOH and HCl are added together, the mixture gets hot.
50.0 mL of 2.00 <u>M</u> NaOH and 50.0 mL of 2.00 <u>M</u> HCl are mixed.
Both solutions are at room temperature, 18.0°C, and the final temperature of the mixture is 32.0°C.

a)   Calculate the heat released by the reaction.

b)   Calculate the moles of HCl formed.

c)   Calculate the ΔH of neutralization in kJ/mol.

Summer Review   Station 9