South Pasadena • AP Chemistry Name _____ Period ___

Summer Review Station 1

(Ch 1)-MEASUREMENTS

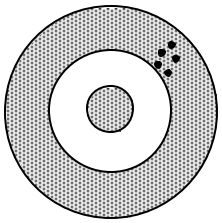
Write in the number of significant figures for each of the following measurements:

___ 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

You measure a 5.75 mL sample of mercury with a mass of 77.05 g. The measured density is _____

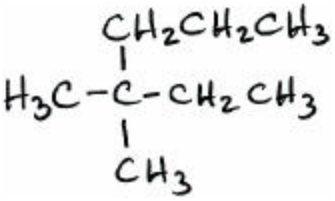
Mercury's accepted density is 13.53 $g \cdot mL^{-1}$. The % error in your measurement is: _____



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

Summer Review — Station 3

(Ch 2)—ATOMS & FAMILIES

Subatomic Particles

Use the following key:
(each answer may be used once, more than once, or not at all)

A) proton
B) neutron
C) electron
D) proton and neutron

___ Determines the identity of the atom.
___ Makes up the size of the atom.
___ Makes up the mass of the atom.
___ Has a charge of +1
___ Has a mass of 1 amu
___ Has a mass of $1/1837^{th}$ amu

Chemical Families

Use the following key:
(each answer may be used once, more than once, or not at all)

A) alkali metal family
B) noble gas family
C) halogen family
D) alkaline earth metal family

___ Very unreactive.
___ Forms 1- ions.
___ Very reactive with water.
___ All gases.
___ Forms 2+ ions.
___ Cs is a member of this family.

Summer Review — Station 4

(Ch 2)—SUBATOMIC PARTICLES & EXPERIMENTS

Substance	# protons	# neutrons	# electrons
^{7}Li			
$^{63}Cu^{2+}$			
$^{127}I^{-}$			

Scientists

Use the following key:
(each answer may be used once, more than once, or not at all)

A) John Dalton
B) Ernest Rutherford
C) Democritus
D) J.J. Thomson

___ Most of the mass of the atom is in the nucleus.
___ Billiard Ball Model
___ Atomos = indivisible
___ Gold Foil/alpha particle Experiment
___ Plum Pudding Model
___ Studied cathode ray tubes

Summer Review — Station 5

(Ch 3)-MEASURING CHEMICALS

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			

Summer Review — Station 6

(Ch 3)-MOLE PROBLEMS

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:							

Summer Review — Station 7

(Ch 4)-REACTIONS

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 $N_2(g)$?

Summer Review — Station 8

(Ch 4)-EMPIRICAL FORMULAS

Empirical Formulas:

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

Summer Review — Station 9

(Ch 5)-DRIVING FORCES

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 10

(Ch 5)-REDOX REACTIONS

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, $\underline{N}O_3^-$