

TEST FRIDAY

NO NOTEBOOK TODAY.

PURPOSE PRACTICE

PROUST'S LAW CALCULATIONS.

WARMUP TAKE OUT YOUR
"DRAKE" SHEET

GALLERY WALK.

- 1) stand the boards.
- 2) stand with your board until I give a homework
- 3) Walk around check your "OVO" **ANSWER**
- 4) Hand in OVO.
finished.

Problem: If you know the mass of each element in a compound, how do you find the formula of the compound?

In this problem the compounds are made from two elements called "X" and "Y"

CHEMISTRY CLASSWORK

MR. GENEST DECEMBER 9, 2015



Clues:

- Assume at least one of the substances formulas is X_1Y_1
- Dalton claims that compounds come in types, called elements. Each element has a characteristic mass in grams.

Data from a lab.

Blueish compound:	72.7 grams X	27.3 grams Y
Reddish compound:	91.36 grams X	68.64 grams Y

① FIGURE OUT WHICH COMPOUND IS X_1Y_1

B
L
U
E

$$\frac{27.3 \text{ grams Y}}{72.7 \text{ grams X}} = \frac{0.376 \text{ Y}}{1 \text{ X}} =$$

R
E
D

$$\frac{68.64 \text{ grams Y}}{91.36 \text{ grams X}} = \frac{0.751 \text{ Y}}{1 \text{ X}}$$

WE KNOW BLUE COMPOUND HAS LESS Y. ITS FORMULA IS X_1Y_1

② FIGURE HOW MUCH MORE Y IS IN RED THAN BLUE.

$$\frac{0.751 \text{ Y BLUE}}{0.376 \text{ Y RED}} = 1.99 \approx 2 \frac{\text{Blue}}{\text{Red}}$$

WE FOUND THAT COMPARED TO X_1Y_1 BLUE, RED HAS DOUBLE THE Y. ITS FORMULA IS X_1Y_2

ANSWER

Circle one choice

The Reddish compound is $XY?$ $XY_2?$ $XY_3?$ XY_4

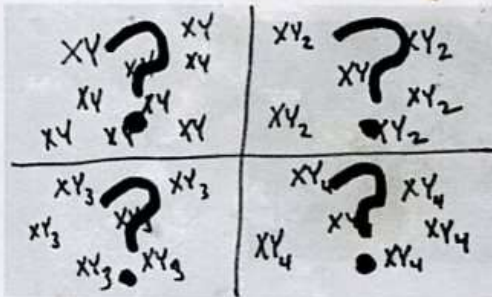
The Blueish compound is $XY?$ $XY_2?$ $XY_3?$ XY_4

Don't hand this in. Keep it as notes.

Problem: If you know the mass of each element in a compound, how do you find the formula of the compound?

In this problem the compounds are made from two elements called "X" and "Y"

SIDE 2



Clues:

- Assume at least one of the substances formulas is X_1Y_1
- Dalton claims that compounds come in types, called elements. Each element has a characteristic mass in grams.

Data from a lab.

Compound 1:	88.8 grams X	67.2 grams Y
Compound 2:	79.9 grams X	20.1 grams Y

① FIGURE OUT WHICH COMPOUND IS X_1Y_1

$$\boxed{1} \frac{Y}{X} = \frac{67.2 \text{ grams Y}}{88.8 \text{ grams X}} = \frac{0.756 \text{ grams Y}}{1 \text{ grams X}}$$

$$\boxed{2} \frac{Y}{X} = \frac{20.1 \text{ grams Y}}{79.9 \text{ grams X}} = \frac{0.252 \text{ Y}}{1 \text{ X}}$$

So $\boxed{2}$ must be " X_1Y_1 "

② FIGURE OUT HOW MUCH MORE "Y" IS IN $\boxed{1}$ THAN IN $\boxed{2}$

$$\frac{.756}{.252} = 3.0123 \frac{Y \text{ in } \boxed{1}}{1 Y \text{ in } \boxed{2}}$$

ANSWER

Circle one choice

Compound 1 is $XY?$ $XY_2?$ $XY_3?$ XY_4

Compound 2: is $XY?$ $XY_2?$ $XY_3?$ XY_4

Don't hand this in. Keep it as notes.

Law of Definite Proportions
 Chemistry: <http://ganest.weebly.com>
 Only a fool doesn't check their homework answers.
 Students who get high grades find time to re-do homework as practice,
 after answers are given in class.



ANSWERS

Name _____
 Period _____

1. Proust's Law says A GIVEN SUBSTANCE
ALWAYS HAS EXACTLY THE
SAME % OF INGREDIENTS

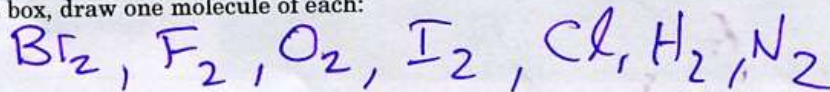
2. With which brilliant realization is each most appropriately credited?
 (You may wish to watch Friday's history video again on our class website)

<u>B</u> John Dalton	A. if something is a 'substance' it has a fixed ratio of elements in it that NEVER varies.
<u>A</u> Josef Proust	B. the atoms in matter come in versions. These versions are called elements.
<u>D</u> Guy Lussac	C. The mass of a chemical is the same as the ingredients that went into it. Mass cannot disappear magically.
<u>C</u> Lavoisier	D. Some particles of pure elements contain two atoms of that element.

answers for #3 through 8 were done as a gallery walk with whiteboards. See your notes from then.

9. You should memorize which elements exist as **diatomic molecules**. They are: hydrogen, nitrogen, oxygen, fluorine, chlorine, bromine, iodine

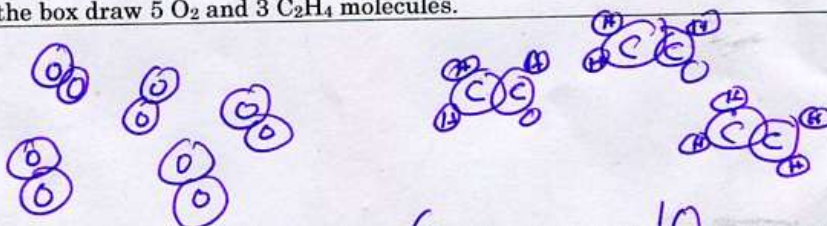
In this box, draw one molecule of each:



10. When fluorine is by itself with no other elements, how many atoms of bromine will be in that molecule? (1 / **2** / variable)

important! → 11. When fluorine is in a compound, with one or more other elements, how many atoms of fluorine will be in that molecule? (1 / 2 / variable)

12. . In the box draw 5 O_2 and 3 C_2H_4 molecules.



This box contains 12 hydrogen atoms 6 carbon atoms and 10 oxygen atoms.

Altogether this box contains 8 molecules (3 C_2H_4 and 5 O_2)