

## Science 10

Thursday, April 5/18

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1. Check:  
Review - SA Chem #2
2. SA Chem #2 - **Friday, April 6/18**
3. Translating Word Equations
4. Worksheet - Translating Word Equations

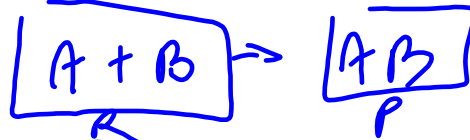
5. Predicting Products
6. Worksheet - Predicting Products

Science 10  
Review for SA: Chem #2

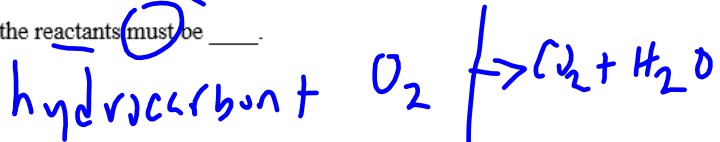
**Part 1 – Multiple Choice**

Print the letter of the best answer on the line provided.

- A 1. In a chemical reaction, Substance A and Substance B combine to form a new substance, AB. In this reaction.
- A) A and B are the reactants.
  - B) A, B and AB are the reactants.
  - C) AB is the reactant.
  - D) A and B are the products.



- A 2. In a combustion reaction, one of the reactants must be \_\_\_\_.
- A) oxygen
  - B) carbon dioxide
  - C) water
  - D) carbon monoxide



- B 3. A single replacement reaction can be compared to:
- A) two dancing couples switching partners
  - B) a person "cutting in" on a dancing couple
  - C) two single people joining for a dance
  - D) a couple breaking up

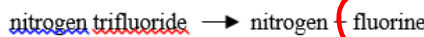
(analogy)

ele rcpd → ele + cpd  
 single pair    single pair

- C 4. In a chemical reaction,
- A) ~~the atoms of the reactants always stay together to form the products.~~
  - B) ~~new atoms are formed which combine to make the products.~~
  - C) the atoms of the reactants unbond, rearrange, and then rebond to form the products.
  - D) ~~some atoms disappear while others multiply to form the products.~~

- C 5. What does the symbol  $\rightarrow$  in a chemical equation mean?
- A) reactant
  - B) numerical coefficient
  - C) yields
  - D) product
- produces/gives .

- B 6. If you rewrite the following word equation as a chemical equation, what will be the symbol for fluorine?

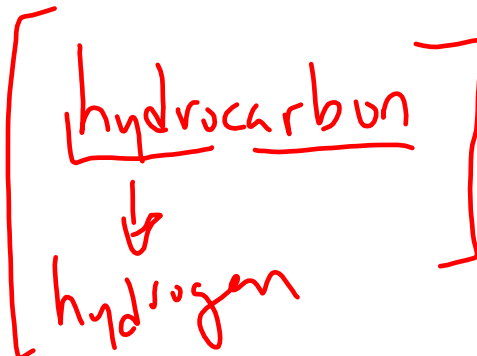


- A) F
- B) F<sub>2</sub>
- C) F<sub>3</sub>
- D) F<sub>6</sub>



- D 7. The \_\_\_\_\_ states the mass of reactants has to be equal to the mass of the products in a chemical reaction.
- A) The Law of Definite Proportions
  - B) The Law of Multiple Proportions
  - C) The Law of Chemical Reactions
  - D) The Law of Conservation of Mass

- D 8. Hydrocarbons must contain
- A) hydrogen
  - B) hydrogen and oxygen
  - C) carbon
  - D) carbon and hydrogen



## Part 2 – Names and Chemical Formulas

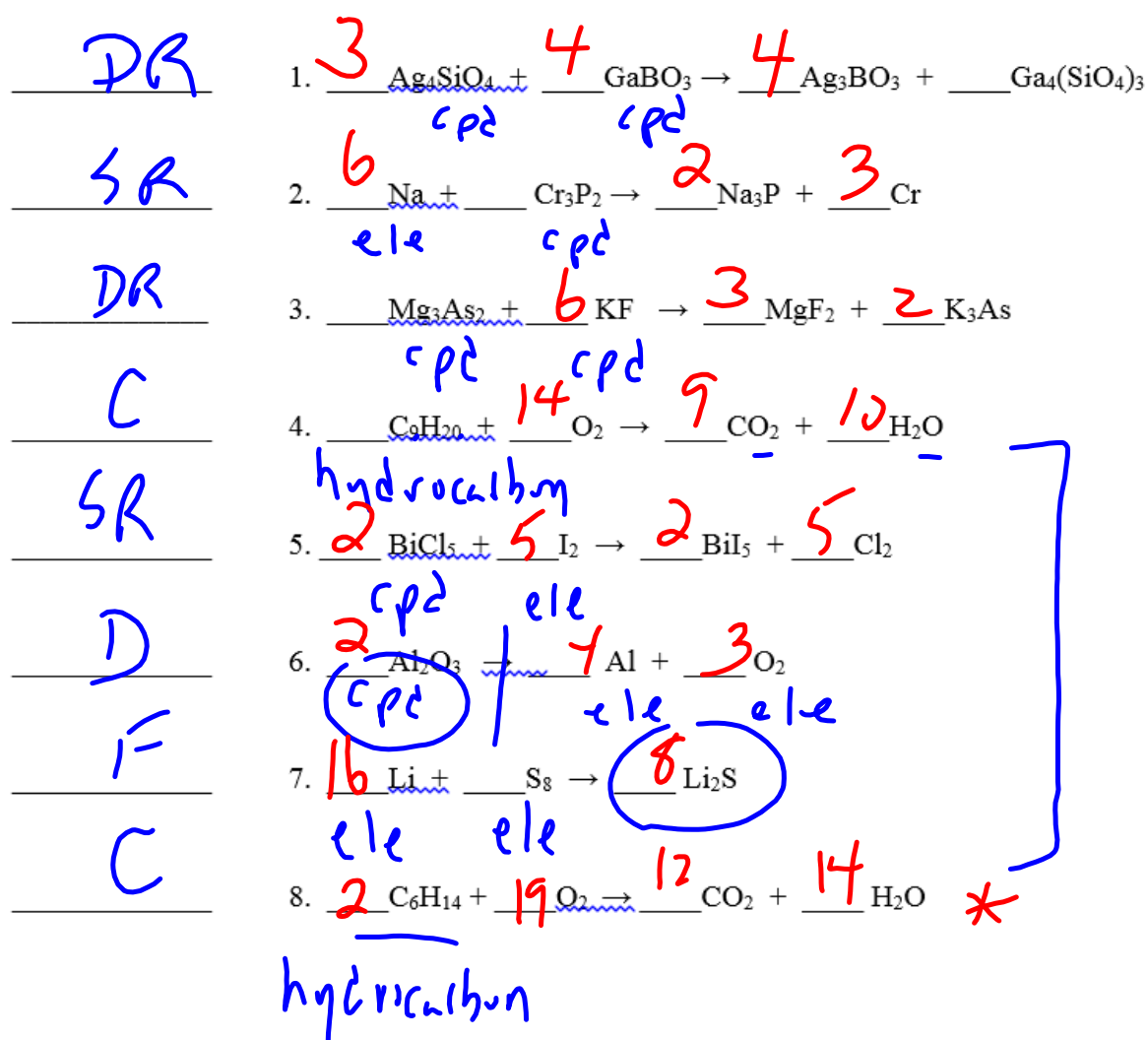
Complete the table below.

Name of Compound	Formula of Compound
silver phosphide	$\text{Ag}_3\text{P}$ metal $\rightarrow$ ionic cpd.
bismuth(V) sulfate	$\text{Bi}_2(\text{SO}_4)_5$ metal $\rightarrow$ ionic cpd.
ammonium selenide polyatomic	$(\text{NH}_4)_2\text{Se}$ <del><math>(\text{NH}_4)_2\text{Se}_1</math></del> $\rightarrow$ $(\text{NH}_4)_2\text{Se}$
nitrogen triiodide	$\text{NI}_3$ nonmetal $\rightarrow$ mol. cpd. (prefixes)
zinc chloride metal.	$\text{Zn}^{2+}\text{Cl}^{-1} \rightarrow \text{ZnCl}_2$
diselenium hexasulfide	$\text{Se}_2\text{S}_6$ nonmetal $\rightarrow$ mol. cpd $\rightarrow$ pref.
barium borate metal.	$\text{Ba}_2(\text{BO}_3)_2$ <del><math>\text{Ba}(\text{BO}_3)</math></del> $\rightarrow$ $\text{Ba}_2(\text{BO}_3)_2$
tetrabromine octochloride	$\text{Br}_4\text{Cl}_8$ mol. don't reduce
pentaphosphorus decaoxide	$\text{P}_5\text{O}_{10}$ nonmetal $\rightarrow$ mol cpd (pref)
manganese(IV) carbonate	$\text{Mn}(\text{CO}_3)_2$ metal
iron(III) arsenide metal	$\text{Fe}^{3+}\text{As}^{-3} \rightarrow \text{FeAs}_3$

## Part 3 – Identifying and Balancing Chemical Equations


I. Indicate the type of each equation by printing F (formation), D (decomposition), SR (single replacement), DR (double replacement) or C (combustion) on the line provided.


II. Balance each reaction.



# Physics 112

Thursday, April 4/18

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## 1. SA: U1-S3 - Mathematical Analysis

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2. Unit 2 - Dynamics

3. Concept Sheet: U2 S1 - Introduction to Forces

4. Introduction to Forces

5. Applied Force

6. Force of Gravity

7. Worksheet - Practice Problems (PP) - C4 - Weight - Page 137: 1-4

8. Normal Force

9. Tension

10. Force of Friction

11. Handout - Coefficients of Friction

12. Free Body Diagrams

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## Physics 122

Thursday, April 5/18

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1. Check:

Worksheet - Elastic and Inelastic Collisions  
Worksheets - 2D Collisions and Explosions

2. FA - 1D Collision and Type

FA - 2D Explosion

3. SA - Unit 1 - S3&4

- Friday. Prob.-only.

Relative Velocity - Parallel Directions

Relative Velocity - Boat/Plane

Relative Velocity - Intersection

1D Collision/Explosion with Type

2D Collision

2D Explosion

4. Unit 3 - S1: Electrostatics

### **Formative Assessment - 1D Collision and Type (DE4.1 and DE4.3)**

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A 92.0 kg football player running at 6.50 m/s south collides with an 85.0 kg football player running at 3.00 m/s north. The 92.0 kg football player continues moving at a velocity of 2.00 m/s south after the collision.

- a) What is the velocity of the 85.0 kg football player after the collision?
- b) What type of collision occurred? Justify your answer mathematically.

**Formative Assessment: 2D Explosion (DE4.5)**

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A 5.0 kg bomb at rest explodes into three pieces, each of which travels parallel to the ground. The first piece, with a mass of 1.2 kg, travels at 5.5 m/s at an angle of  $20^\circ$  south of east. The second piece has a mass of 2.5 kg and travels 4.1 m/s at an angle of  $25^\circ$  north of east. Determine the velocity of the third piece.



## Physics 122 - 2D Explosions

5. A bomb sitting at rest on a table explodes into four pieces of equal mass. The first piece travels to the South at a velocity of 55.0 m/s. The second piece travels to the West at a velocity of 80.0 m/s. The third piece travels at a velocity of 40.0 m/s [ $30.0^\circ$  W of N]. What is the velocity of the fourth piece? (102 m/s,  $11.5^\circ$  N of E)

6. A 200 kg bomb moving at a velocity of 10.0 m/s to the West explode into three pieces. The first piece has a mass of 100 kg and moves to the West with a velocity of 90.0 m/s. The second piece has a mass of 55.0 kg and moves at an angle of  $30.0^\circ$  N of E with a velocity of 55.0 m/s. What is the velocity of the third piece? (143 m/s,  $19.0^\circ$  S of E)

## Science 122

Thursday, April 5/18

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1. Check:

Worksheet - Pressure and Depth in a Static Fluid

Worksheet - Archimedes' Principle

Worksheet - More Hydrostatic Fluid Problems

Worksheet - Section 11.8 - The Equation of Continuity

Worksheet - Section 11.9 - Bernoulli's Equation

Worksheets - Fluids - Continuity and Bernoulli's Equations

2. SA - Fluid Mechanics

- Friday, April 6/18 -> 7 Problems

pressure

hydrostatic fluid

~~Pascal's Principle~~

~~partially submerged object~~

apparent weight

completely immersed object

mass flow rate

continuity equation

volume flow rate

Bernoulli equation