

Name: \_\_\_\_\_

## SOL REVIEW WS

Nomenclature, molar mass, products of reactions, mole conversions

### Part I: Name the following compounds:

HINT: Molecular = 2 nonmetals – use prefixes

Ionic = anything else – just state the name of the cation then anion

(use roman numerals if it is a cation w/ multiple charges)

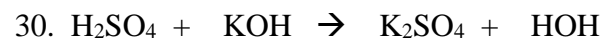
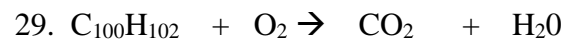
1. NaCl <i>Sodium Chloride</i>	2. KMnO <sub>4</sub>	3. Mg <sub>3</sub> PO <sub>4</sub>
4. H <sub>2</sub> O <i>Dihydrogen monoxide</i>	5. CO	6. N <sub>2</sub> O <sub>4</sub>
7. CuSO <sub>4</sub>	8. Cu <sub>2</sub> O	9. NH <sub>4</sub> NO <sub>3</sub>
10. Al <sub>2</sub> O <sub>3</sub>	11. Fe <sub>2</sub> O <sub>3</sub>	12. K <sub>2</sub> O
13. CCl <sub>4</sub>	14. SnO	15. NCl <sub>3</sub>

### Part II: Write formulas and calculate the molar mass.

Name	Formula	Molar Mass
16. Beryllium Nitride <i>Be<sup>+2</sup> N<sup>-3</sup></i>	<i>Be<sub>3</sub>N<sub>2</sub></i>	<i>69.057 g/mol</i>
17. Aluminum Permanganate		
18. Triselenium Pentabromide		

19. Lithium Nitrite		
20. Lithium Nitride		
21. Copper (II) Nitrate		
22. Copper(I) Sulfide		
23. Carbon dioxide		
24. Lead (IV) Phosphate		

### Part III: Balance the following reactions & determine the type of reaction (synthesis/combination, decomposition, single-replacement, double-replacement, neutralization, combustion)



**Part IV: Answer these questions, using the balanced equation and your periodic table (for molar masses). SHOW ALL WORK**



31. 20.0 grams of aluminum will react with how many grams of ferric oxide( $\text{Fe}_2\text{O}_3$ )?
32. 10.0 moles of ferric oxide ( $\text{Fe}_2\text{O}_3$ ) will produce how many moles of iron?
33. 5.0 grams of ferric oxide ( $\text{Fe}_2\text{O}_3$ ) and 10 grams of aluminum will produce how many grams of aluminum oxide?

**Part V: Use the Gas Laws to answer the following questions. SHOW ALL WORK**

Charles' Law :  $V_1/T_1 = V_2/T_2$

Boyle's Law :  $P_1V_1 = P_2V_2$

Avogadro's Law:  $V_1/n_1 = V_2/n_2$

Combined Ideal Gas Law:  $\frac{P_1V_1}{n_1T_1} = \frac{P_2V_2}{n_2T_2}$

Ideal Gas Law:  $PV = nRT$

$R = 8.31 \frac{\text{L}\cdot\text{kPa}}{\text{mol}\cdot\text{K}}$  ;  $0.0821 \frac{\text{L}\cdot\text{atm}}{\text{mol}\cdot\text{K}}$  ;  $62.4 \frac{\text{L}\cdot\text{mmHg}}{\text{mol}\cdot\text{K}}$

AT STP: 1 mol = 22.4 L of gas

$P_{\text{total}} = P_1 + P_2 + P_3 \dots$

34. What is the volume in liters of 10.0 moles of nitrogen gas at 200. Kelvin, and 4.5 atm?
35. 10.0 liters of a gas at 700. mmHg will have what volume at 400. mmHg?
36. 20.0 liters of gas at 200. K will have what volume at 400.K?
37. At STP, how many liters will 23.93 moles of gas occupy?
38. A sealed flexible container with an initial volume of 1.0 L is occupied by a gas at a pressure of 150 kPa at 25°C. By changing the volume, the pressure of the gas increases to 600 kPa as the temperature is raised to 100°C. What is the new volume (in mL)?
39. Determine the total pressure of a gas mixture that contains oxygen, nitrogen, and helium if the partial pressures of the gases are  $P_{\text{O}_2} = 20.0$  kPa,  $P_{\text{N}_2} = 46.7$  kPa, and  $P_{\text{He}} = 26.7$  kPa.

**Part VI: Fill in the table for the following subatomic particles.**

Symbol	Name	Charge	Mass	Location within the atom
e <sup>-</sup>				
p <sup>+</sup>				
n <sup>0</sup>				