

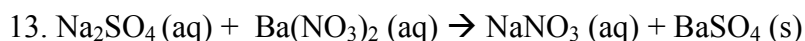
Please answer the following questions with a word or phrase. (2 points each)

1. What do acid-base reactions always form?
2. What do precipitation reactions always form?
3. What type of reaction transfers electrons?
4. What is a spectator ion?

Explain the five reaction types: COMBUSTION, DECOMPOSITION, DOUBLE DISPLACEMENT, SINGLE DISPLACEMENT, SYNTHESIS, with regard to what happens in the reaction

5. Combustion:
6. Decomposition:
7. Double Displacement:
8. Single Displacement:
9. Synthesis:
10. What is transferred in an oxidation reduction reaction?
11. The formation of a gas is accompanied at least one of which two other driving forces?
12. What two processes occur simultaneously to transfer electrons?

For the following equation, write the COMPLETE IONIC equation from the given molecular equation. (4 points)



14. When a precipitation reaction occurs, What happens to the ions that do NOT form the precipitate?

15. An aqueous solution of barium nitrate is reacted with an aqueous solution of sodium sulfate, which of the following substances would be the solid formed by the reaction.

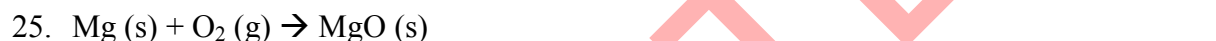
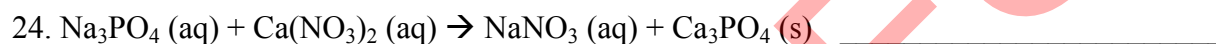
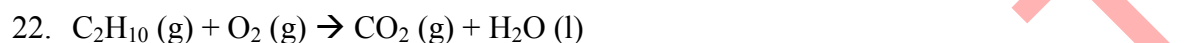
16. Which man developed the basic definitions of an acid and of a base?

17. A substance that, when dissolved in water, completely dissociates (comes apart) into its component ions is known as a _____.

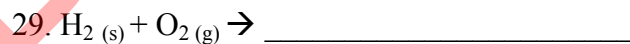
Please indicate the **DRIVING FORCE** for each of the following unbalanced reactions. (3 points each) Use **each driving force only ONCE!!!!**

Reaction	Driving Force
18. $\text{HCl (aq)} + \text{Mg (s)} \rightarrow \text{MgCl}_2 \text{ (aq)} + \text{H}_2 \text{ (g)}$	_____
19. $\text{H}_2\text{SO}_4 \text{ (aq)} + \text{NaOH (aq)} \rightarrow \text{Na}_2\text{SO}_4 \text{ (aq)} + \text{H}_2\text{O (l)}$	_____
20. $\text{Ag}(\text{NO}_3)_2 \text{ (aq)} + \text{KCl (aq)} \rightarrow \text{KNO}_3 \text{ (aq)} + \text{AgCl (s)}$	_____
21. $\text{Zn (s)} + \text{CuSO}_4 \text{ (s)} \rightarrow \text{ZnSO}_4 \text{ (s)} + \text{Cu (s)}$	_____

Please indicate the type of reaction exemplified by the following equations by choosing a type from the following: COMBUSTION, DECOMPOSITION, DOUBLE DISPLACEMENT, SINGLE DISPLACEMENT, SYNTHESIS. Each choice is used only once! (3 points each)



Predict the products of the following reactions. (3 points each)



Complete following equations by predicting the products, **include the states of matter**. Circle **Reaction or No Reaction** to indicate if the reaction actually occurs. 4 points each



REACTION

NO REACTION



REACTION

NO REACTION



REACTION

NO REACTION



REACTION

NO REACTION

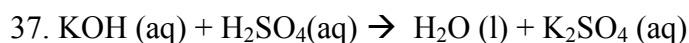
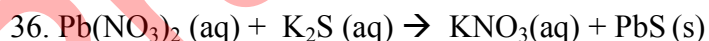


REACTION

NO REACTION

For the following equations, write the NET IONIC equation from the given molecular equation.

(3 points each)



Please answer the following thought provoking question. Please ask if you do not understand the question. (6 points)

38. You need to create a working “volcano” for science class. The chemicals you have available are: Na_2CO_3 (s) , NaOH (s) and HCl (aq). In order to produce the desired volcano effect you will need to produce a gas. Which two chemicals will produce a gas when mixed? Using your knowledge of chemical reactions, explain, USING CHEMISTRY TERMS AND EQUATIONS, which chemicals to mix AND WHY. Hints: React each of the solids with the HCl . Remember H_2CO_3 splits into H_2O and CO_2 .

Na_2CO_3 Reaction:

NaOH Reaction:

Which chemicals should you use and Why: