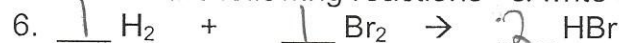


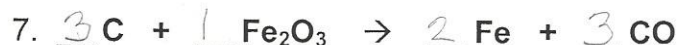


- The skeleton equation above represents a chemical reaction. Which of these are the Reactants Ca + HCl
Products CaCl₂ + H₂
- A balanced chemical equation is a direct representation of the law of conservation of mass
- In a chemical equation, the number written in front of the chemical formula is the _____.
a. Reactant
b. superscript
c. Subscript
d. Coefficient
- In order to balance a chemical equation one must use coefficients
- The skeleton equation in number one violates the law of conservation of mass. Which of these is the correct balanced chemical equation?
a. 2Zn(s) + HCl(aq) → 2ZnCl₂(aq) + H₂(g) * Hydrogen not balanced!
b. Zn(s) + 2HCl(aq) → ZnCl₂(aq) + 2H₂(g) * Hydrogen not balanced!
c. 1Zn(s) + 2HCl(aq) → ZnCl₂(aq) + H₂(g)
d. 2Zn(s) + HCl(aq) → 2ZnCl₂(aq) + H₂(g) * Cl & H not balanced!

Balance the following reactions & write the type of reaction



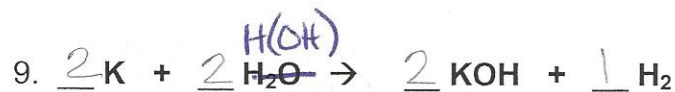
Synthesis



Single replacement



Double replacement



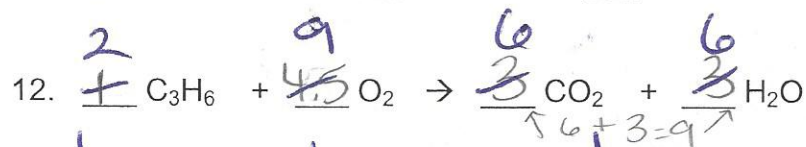
Single replacement



Single replacement



Double replacement



combustion



Decomposition

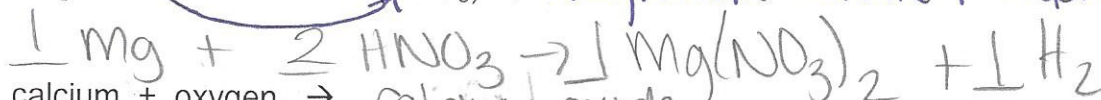
①

26. Which of the series of metals below are listed in increasing reactivity

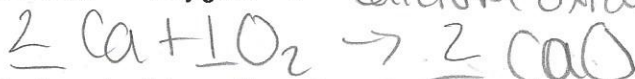
- Lowest \rightarrow Highest
- lead < zinc < calcium < potassium
 - potassium < calcium < zinc < lead
 - calcium < lead < potassium < zinc
 - None of the above. All metals have the same reactivity

Predict the products for the following reactions in words and balanced formulas

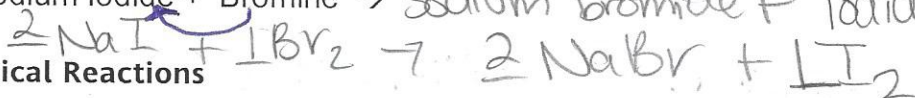
27. magnesium + nitric acid (HNO_3) \rightarrow magnesium Nitrate + Hydrogen



28. calcium + oxygen \rightarrow calcium oxide

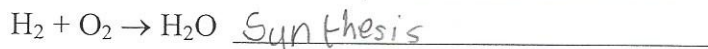
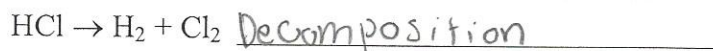


29. Sodium Iodide + Bromine \rightarrow sodium bromide + Iodide



F. Chemical Reactions

30. Name the reaction types for the following chemical reactions?



31. The law of conservation of mass states that mass cannot be –

- created or destroyed
- heated or cooled

32. $\text{CH}_4(\text{g}) + 2\text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{g})$

For the reaction above, if 46.0 g of methane (CH_4) reacts with 96.0 g of oxygen to produce 54.0 g water, how much carbon dioxide is produced?

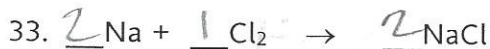
Work:

Answer:

$$\begin{array}{r} 96 \\ + 46 \\ \hline 142 \end{array} \rightarrow \begin{array}{r} 13 \\ + 54 \\ \hline 67 \end{array}$$

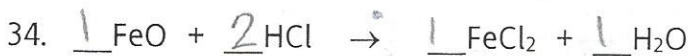
88 grams

Balance the following equations and predict the type of reaction:



Type= Synthesis

Ratio of Coefficients = 2:1:2



Type= Double displacement

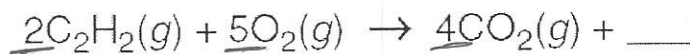
Ratio of Coefficients = 1:2:1:1



Type= combustion

2:13:8:10

3



14. Which additional product balances the reaction above?

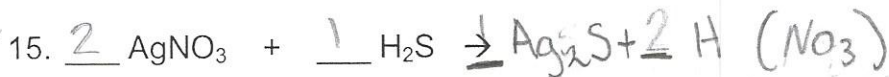
- a. $4OH(aq)$
- b. $CH_4(g)$
- c. $H_2O_2(g)$
- d. $2H_2O(g)$

*Products of combustion
Reaction are ALWAYS

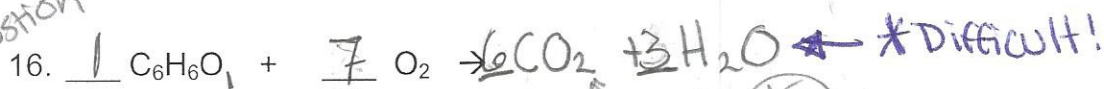


Predict the products of the following reactions and balance

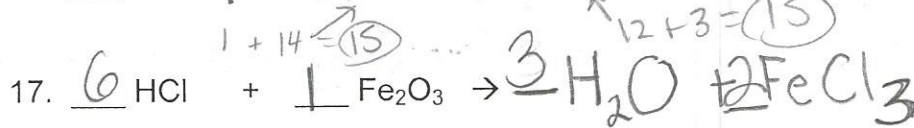
Double



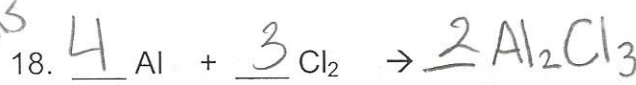
Combustion



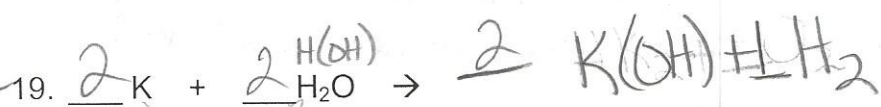
Double



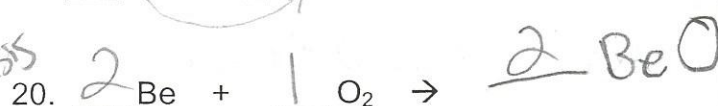
Synthesis



Single



Synthesis



Double



22. What are the products of the reaction between barium hydroxide and hydrochloric acid?

- a. Barium chloride and water $BaCl_2 + H(OH)$
- b. Barium chloride and barium hydride
- c. Barium hydroxide and water
- d. chloric acid and barium

hydrogen chloride

23. In the combustion reaction of propane, C_3H_8 , what are the products?

- c. C_3H_8 and O_2
- d. O_2 and H_2O
- c. C_3H_8 and CO_2
- d. H_2O and CO_2

*PRODUCTS OF
COMBUSTION
ALWAYS CO_2
+ H_2O !!

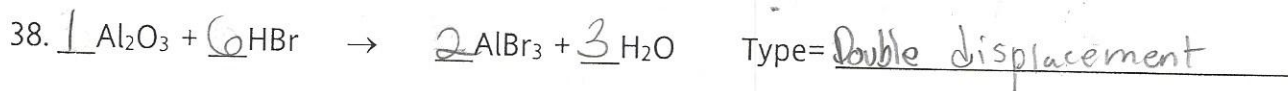
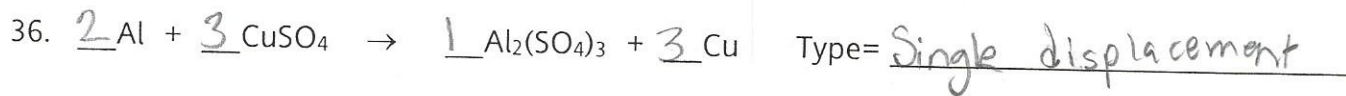
24. In the lab you place a piece of silver in sodium chloride solution. After two hours what would you expect to see?

- a. The silver metal would be replaced by sodium metal
- b. Bubbles would be produced because of the reaction
- c. There would be no reaction visible because silver cannot replace sodium
- d. Silver will combine with sodium forming a green chloride solution.

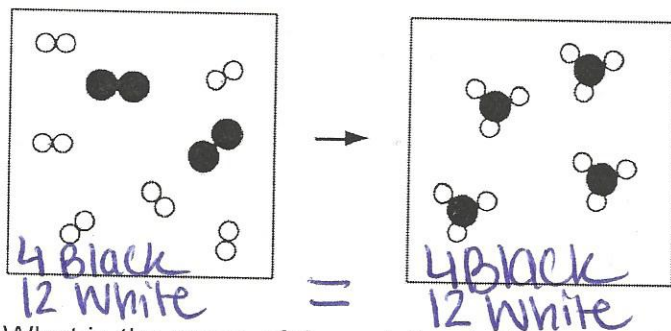
25. Potassium chloride combines with Copper II sulfate to produce which products?



2

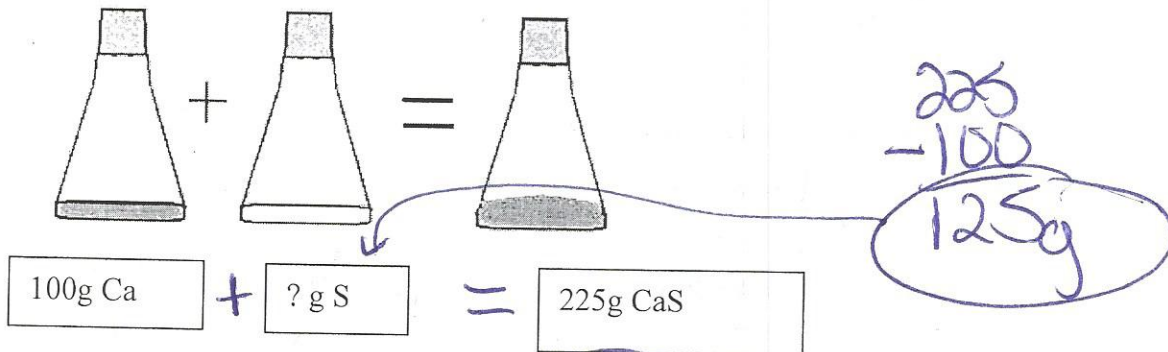


39. Are the following atoms balanced on each side of the equation?



Yes, same #
of each Atom.
They are rearranged!

40. What is the mass of the solution in the second flask in this synthesis reaction?



41. A metallic alloy is created by the physical process of melting two metals together. What type of matter would this be classified as?

- a. Compound b. Element c. Homogeneous mixture d. heterogeneous mixture

42. Rusting is an example of a chemical change. The ability of an object to rust is a -

- a. physical property b. chemical property c. physical change

43. Know all rules for identifying and rounding with significant figures.

All <u>1-9</u> numbers are significant.	333 has <u>3</u> sig figs 3333 has <u>4</u> sig figs
Zeros that are <u>between</u> non-zero numbers are significant	303 - <u>3</u> 3003 has <u>4</u> sig figs
If there is a decimal in the number, go right until you hit a non-zero number, all zeroes after that are significant.	0.000003000 has <u>4</u> sig figs 0.00300000 has <u>6</u> sig figs
If there is no decimal in the number, only "sandwiched" zeroes are sig. (End zeroes don't count if no decimal)	30300000000 has <u>3</u> sig figs 30000003000 has <u>8</u> sig figs
Subtract or add, use P.A.D. to round. Divide or multiply, look for least sig fi in factors of the problem to know how many digits to round to.	2.5673 - 1.00 = 1.60 2.5673 / 1.00 = 2.57 2.5673 - 1 = 2 (rounded to no P.A.D.) 5.000 + 5.0000 = 10.000 5.00 x 5.000 = 25.0

4