Unit 5
In-Class Review

Accelerated Chemistry

1. Silver nitrate (aq) + copper (s) → copper (II) nitrate (aq) + silver (s)

$2AgNO_{3(aq)} + Cu_{(s)} \rightarrow Cu(NO_3)_{2(aq)} + 2Ag_{(s)}$

a. What type of reaction is occurring? How do you know?

SR b/c element + compound

b. What do you have to look at to know if this reaction will occur or not?

activity series

c. What is the precipitate formed in the reaction?

Ag

2. Propane (C_3H_8) burns in the presence of oxygen gas →

$C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$

a. What type of reaction is occurring? How do you know?

Combustion b/c O_2 as reactant

b. What is the formula for oxygen in this reaction? Why?

O_2 b/c it's diatomic

c. What is the coefficient for carbon dioxide in the balance chemical equation?

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3. Iron (III) chloride (aq) + sodium hydroxide (aq) → net ionic equation

$FeCl_{3(aq)} + 3NaOH_{(aq)} \rightarrow Fe(OH)_{3(s)} + 3NaCl_{(aq)}$

$Fe^{+3}_{(aq)} + 3Cl^{-}_{(aq)} + 3Na^{+}_{(aq)} + 3OH^{-}_{(aq)} \rightarrow Fe(OH)_{3(s)} + 3Na^{+}_{(aq)} + 3Cl^{-}_{(aq)}$

$Fe^{+3}_{(aq)} + 3OH^{-}_{(aq)} \rightarrow Fe(OH)_{3(s)}$

a. What type of reaction is occurring? How do you know?

DR b/c 2 compounds cations switch

b. What type of compounds are the reactants and products? How do you know?

ionic b/c metal + nonmetal

c. What does the "aq" stand for in the reaction? Why is knowing the states of matter important?

aqueous so we know the spectator ions

4. Hydrogen (g) + nitrogen (g) → ammonia (g)

$3H_{2(g)} + N_{2(g)} \rightarrow 2NH_{3(g)}$

a. What type of reaction is occurring? How do you know?

Synthesis b/c 1 compound forms

b. What product(s) is/are formed?

NH_3

c. Are there any subscripts used in this equation? What do they tell us?

yes, how many atoms of each element

5. Magnesium oxide (s) is heated and breaks down into its elements.

$2MgO_{(s)} \rightarrow 2Mg_{(s)} + O_{2(g)}$

a. What type of reaction is occurring? How do you know?

decomposition b/c compound broken down

b. What is/are the reactant(s) in this reaction?

MgO

c. Why do chemical equations have to be balanced?

to obey the law of conservation of mass

Write the molecular, complete, & net ionic equation when solutions of silver sulfate and magnesium chloride react.

$$Ag_2SO_{4(aq)} + MgCl_{2(aq)} \rightarrow 2AgCl_{(s)} + MgSO_{4(aq)}$$

$$2Ag^+_{(aq)} + SO_4^{2-}{}_{(aq)} + Mg^{2+}_{(aq)} + 2Cl^-_{(aq)} \rightarrow 2AgCl_{(s)} + Mg^{2+}_{(aq)} + SO_4^{2-}{}_{(aq)}$$

$$2Ag^+_{(aq)} + 2Cl^-_{(aq)} \rightarrow 2AgCl_{(s)}$$

- What is the precipitate in this reaction? $AgCl$