Physical Science 10

Exam Review: Chemical Reactions

2. a) iron (II) oxide → iron + oxygen

Reaction Type = Decomposition

$2\ FeO \rightarrow 2\ Fe + O_2$

b) zinc + sodium sulphide → sodium + zinc sulfide

Reaction Type = Single Replacement

$Zn + Na_2S \rightarrow 2\ Na + ZnS$

c) calcium chloride + lithium nitrate → calcium nitrate + lithium chloride

Reaction Type = Double Replacement

$CaCl_2 + 2\ Li(NO_3) \rightarrow Ca(NO_3)_2 + 2\ LiCl$

d) magnesium + oxygen → magnesium oxide

Reaction Type = Synthesis

$2\ Mg + O_2 \rightarrow 2\ MgO$

e) chlorine + silver bromide → bromide + silver chloride

Reaction type = Single Replacement

$Cl_2 + 2\ AgBr \rightarrow Br_2 + 2\ AgCl$

f) copper + barium sulphate → barium + copper (I) sulphate

Reaction Type: Single Replacement

$2\ Cu + BaSO_4 \rightarrow Ba + Cu_2SO_4$

g) sodium hydroxide + calcium carbonate → sodium carbonate + calcium hydroxide

Reaction type = Double Replacement

$2\ NaOH + CaCO_3 \rightarrow Na_2(CO_3) + Ca(OH)_2$

h) potassium chloride → potassium + chlorine

Reaction Type = Decomposition

$2\ KCl \rightarrow 2\ K + Cl_2$

3. For each of the following combustion reactions, complete the balance chemical reaction

a) $C_5H_{12} + 8\ O_2 \rightarrow 5\ CO_2 + 6\ H_2O$

complete combustion

b) $C_4H_{10} + 4\ O_2 \rightarrow CO_2 + CO + 2\ C + 5\ H_2O$

incomplete combustion

c) $2\ C_6H_{14} + 19\ O_2 \rightarrow 12\ CO_2 + 14\ H_2O$

complete combustion

4. Solution A has a mass of 103g. Solution B has a mass of 55g. When they are mixed, a chemical reaction occurs in which a gas is produced. If the mass of the final mixture is 155g, what mass of gas was produced? Define the law of conservation of mass using this example.

A = 103g

B = 55g

A + B → product + gas

103g + 55g → 155g + gas

158g → 155g + ?

158g – 155g = ?

3g = gas

the law of conservation of mass states that the mass of the reactants must equal the mass of the products. The mass that is missing is of the gas that has evaporated during the reaction.