Check Homework #1-4

O^{2-}

Fe^{3+} O^{2-}

Fe^{3+} O^{2-}

2.a) iron + oxygen → iron(III)oxide

$4Fe + 3O_2 \rightarrow 2Fe_2O_3$

synthesis

Zn^{2+} CO_3^{2-} Zn^{2+} O^{2-}

d) zinc carbonate → Zinc oxide + carbon dioxide

$ZnCO_3 \rightarrow ZnO + CO_2$

decomp.

Reactions so far...

Combustion

element/compound + O_2 ⇒ oxides + energy

Ex. C_3H_8 + O_2 CO_2 + H_2O (+ C + CO)

Synthesis

two smaller particles (elements) ⇒ one molecule

Ex. Zn + O_2 ZnO

Decomposition

one molecule ⇒ smaller particles (elements)

Ex. ZnO Zn + O_2

Single Replacement Reactions

(displacement)

Single replacement reactions are chemical changes that involve an element and a compound as reactants. C / O_2 CO_2 / NaI

⇒a metal displaces a metal, or a nonmetal displaces a nonmetal.

Ag^+ Mg^{2+} Cl^- Cl^-

Ex. silver + magnesium chloride ⇒ magnesium + silver chloride

$$2Ag + MgCl_2 \longrightarrow Mg + 2AgCl$$

Br^- I^-
Br^- Ca^{2+} I^-

Ex. bromine + calcium iodide iodine + calcium bromide

$$Br_2 + CaI_2 \longrightarrow I_2 + CaBr_2$$

Double Replacement Reactions

Double replacement reactions are chemical changes that involve two compounds as reactants.

⇒metals (or nonmetals) will 'trade'

Pb^{2+} NO_3^- NO_3^- K^+ I^-

Ex. lead (II) nitrate + potassium iodide ⇒

lead(II)iodide + potassium nitrate

$$Pb(NO_3)_2 + 2KI \longrightarrow PbI_2 + 2KNO_3$$

Write a balanced chemical equation for the following word equation:

Ca^{2+} F^- F^- Na^+ Na^+ O^{2-}

calcium fluoride + sodium oxide ⇒

calcium oxide + sodium fluoride

Ca^{2+} O^{2-} Na^+ F^-

$$CaF_2 + Na_2O \longrightarrow CaO + 2NaF$$