SCH 4C
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Redox Reactions & Redox Numbers

1. For each of the following, write Total Ionic and Net Ionic Equations.

a) $CaCO_{3(aq)} + 2K_{(s)} \rightarrow K_2CO_3 + Ca_{(s)}$

b) $2Cs_3PO_{3(aq)} + 3Be_{(s)} \rightarrow Be_3(PO_3)_{2(aq)} + 2Cs_{(s)}$

c) $Li_2SO_{4(aq)} + 2Cs_{(s)} \rightarrow Cs_2SO_{4(aq)} + 2Li_{(s)}$

d) $NaCl_{(aq)} + 3Al_{(s)} \rightarrow AlCl_{3(aq)} + Na_{(s)}$

e) $Na_2CO_{3(aq)} + Mg_{(s)} \rightarrow MgCO_{3(aq)} + 2Na_{(s)}$

f) $BeCl_{2(aq)} + 3Al_{(s)} \rightarrow AlCl_{3(aq)} + 2Be_{(s)}$

g) $MgSO_{4(aq)} + 2Li_{(s)} \rightarrow Li2SO_{4(aq)}) + Mg_{(s)}$

h) $Na_3PO_{3(aq)} + 3K_{(s)} \rightarrow K_3PO_{3(aq)} + 3Na_{(s)}$

2. For each of the following reactions, identify the reactant that is oxidized and the reactant that is reduced:

(a) $Ca_{(s)} + Cl_{2(g)} \rightarrow CaCl_{2(s)}$

(b) $Zn_{(s)} + S_{(s)} \rightarrow ZnS_{(s)}$

(c) $Mg_{(s)} + Pb^{2+}_{(aq)} \rightarrow Pb_{(s)} + Mg^{2+}_{(aq)}$

(d) $2\ Ag^{+}_{(aq)} + Fe_{(s)} \rightarrow Fe^{2+}_{(aq)} + 2\ Ag_{(s)}$

(e) $NiSO_{4(aq)} + Mg_{(s)} \rightarrow MgSO_{4(aq)} + Ni_{(s)}$

(f) $6\ HCl_{(aq)} + 2\ Fe_{(s)} \rightarrow 2\ FeCl_{3(aq)} + 3\ H_{2(g)}$

(g) $CuCl_{2(aq)} + Mg_{(s)} \rightarrow MgCl_{2(aq)} + Cu_{(s)}$

(h) $3\ AgNO_{3(aq)} + Al_{(s)} \rightarrow 3\ Ag_{(s)} + Al(NO_3)_{3(aq)}$

3. Determine the oxidation number of the underlined element in each of the following compounds or ions:

(a) $H\underline{Cl}O_3$ (b) $\underline{S}O_3^{2-}$ (c) $\underline{Cl}O_4^-$ (d) $\underline{Pb}SO_4$

(e) $K\underline{N}O_2$ (f) $Na_2\underline{C}O_3$ (g) $\underline{Fe}(NO_3)_3$ (h) $\underline{Mn}O_4^-$