STILL MORE BALANCING PROBLEMS

1. Complete each of the following synthesis reactions and balance:

a) $3Mg + N_2 \rightarrow Mg_3N_2$

b) $2Na + S \rightarrow Na_2S$

c) $CO_2 + Na_2O \rightarrow Na_2CO_3$

d) $NH_3 + HBr \rightarrow NH_4Br$

e) $MgO + CO_2 \rightarrow MgCO_3$

2. Complete each of the following decomposition reactions and balance:

a) $2Fe_2O_3 \rightarrow 4Fe + 3O_2$

b) $2AsCl_3 \rightarrow 2As + 3Cl_2$

c) $BaCO_3 \rightarrow BaO + CO_2$

d) $2P_2O_5 \rightarrow 4P + 5O_2$

e) $H_2S \rightarrow H_2 + S$

3. Complete each of the following single replacement reactions and balance:

a) $Hg(ClO_3)_2 + Zn \rightarrow Zn(ClO_3)_2 + Hg$

b) $CrO_3 + 2Al \rightarrow Al_2O_3 + Cr$

c) $2AgI + F_2 \rightarrow 2AgF + I_2$ (2I)

d) $Mg_3N_2 + 3Cl_2 \rightarrow 3MgCl_2 + N_2$

e) $NiO + Fe \rightarrow FeO + Ni$

$3NiO + 2Fe \rightarrow Fe_2O_3 + 3Ni$

4. Complete each of the following double replacement reaction and balance:

a) $3CdSO_4 + 2H_3PO_4 \rightarrow Cd_3(PO_4)_2 + 3H_2SO_4$

b) $2NH_4Cl + BaCO_3 \rightarrow (NH_4)_2CO_3 + BaCl_2$

c) $2Au_2O_3 + 3PtC \rightarrow Au_4C_3 + 3PtO_2$

d) $Cr(CO_3)_3 + 2Bi(NO_3)_3 \Rightarrow Cr(NO_3)_6 + Bi_2(CO_3)_3$