CHEM 106 Chapter 6 Writing and Balancing Equations

1. Sulfur dioxide is produced from burning coal that contains sulfur. It can combine with moisture in the air to create sulfurous acid, a component of acid rain. Write and balance the equation for this process.

2. Tin metal can be produced by combining tin(IV) oxide (obtained from tin ore) with coal (rich in carbon). A byproduct of this reaction is carbon monoxide. Write and balance the equation for this process.

3. Sodium metal reacts with water to produce hydrogen gas and sodium hydroxide. Write and balance the equation for this reaction.

4. Balance each equation below.

a) $FeCl_3(aq) + KOH(aq) \rightarrow Fe(OH)_3(s) + KCl(aq)$

b) $Pb(C_2H_3O_2)_2(aq) + KI(aq) \rightarrow PbI_2(s) + KC_2H_3O_2(aq)$

c) $P_4O_{10}(s) + H_2O(l) \rightarrow H_3PO_4(aq)$

d) $Li_2O(s) + H_2O(l) \rightarrow LiOH(aq)$

e) $MnO_2(s) + C(s) \rightarrow Mn(s) + CO_2(g)$

f) $Sb(s) + Cl_2(g) \rightarrow SbCl_3(s)$

g) $CH_4(g) + H_2O(g) \rightarrow CO(g) + H_2(g)$

h) $FeS(s) + HCl(aq) \rightarrow FeCl_2(aq) + H_2S(g)$
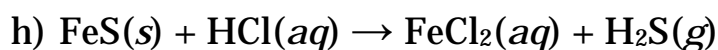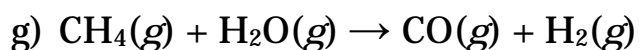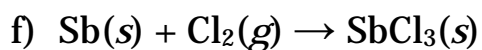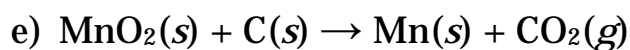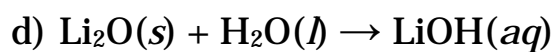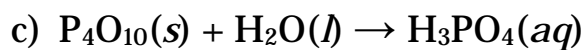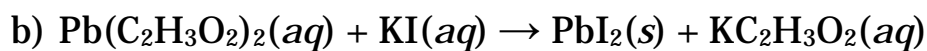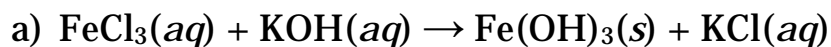
5. Finish balancing each equation below.

a. $SiO_2(s) + 4\ HF(aq) \rightarrow SiF_4(g) + 2\ H_2O(l)$

b. $2\ Cr(s) + 3\ O_2(g) \rightarrow Cr_2O_3(s)$

c. $Al_2S_3(s) + H_2O(l) \rightarrow 2\ Al(OH)_3(s) + 3\ H_2S(g)$

d. $Fe_2O_3(s) + CO(g) \rightarrow 2\ Fe(s) + CO_2(g)$