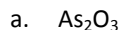
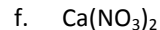


AP Chem HW 2-E

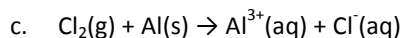
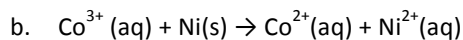
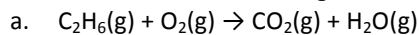
1. Assign oxidation state for all atoms in each of the following compounds.

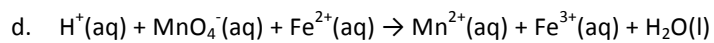
As \rightarrow _____O \rightarrow _____H \rightarrow _____As \rightarrow _____O \rightarrow _____Na \rightarrow _____S \rightarrow _____O \rightarrow _____Na \rightarrow _____Bi \rightarrow _____O \rightarrow _____Mg \rightarrow _____P \rightarrow _____O \rightarrow _____Ca \rightarrow _____N \rightarrow _____O \rightarrow _____

2. Specify which of the following equations represent oxidation-reduction reactions and identify what species is oxidized and what species is reduced.

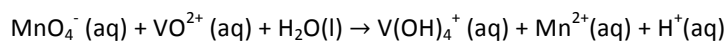
Equation	Is it an oxidation-reduction reaction?	What species is being oxidized?	What species is being reduced?
a. $\text{CH}_4(\text{g}) + \text{H}_2\text{O}(\text{g}) \rightarrow \text{CO}(\text{g}) + 3\text{H}_2(\text{g})$			
b. $2\text{AgNO}_3(\text{aq}) + \text{Cu}(\text{s}) \rightarrow \text{Cu}(\text{NO}_3)_2(\text{aq}) + 2\text{Ag}(\text{s})$			
c. $\text{Zn}(\text{s}) + 2\text{HCl}(\text{aq}) \rightarrow \text{ZnCl}_2(\text{aq}) + \text{H}_2(\text{g})$			
d. $2\text{H}^+(\text{aq}) + 2\text{CrO}_4^{2-}(\text{aq}) \rightarrow \text{Cr}_2\text{O}_7^{2-}(\text{aq}) + \text{H}_2\text{O}(\text{l})$			

3. Balance each of the following oxidation-reduction reactions





4. The vanadium in a sample of ore is converted to VO^{2+} . The VO^{2+} ion is subsequently titrated with MnO_4^- in acidic solution to form $\text{V}(\text{OH})_4^+$ and manganese(II) ion. The unbalanced titration reaction is



To titrate the solution, 26.45 mL of 0.02250 M MnO_4^- was required. If the mass percent of vanadium in the ore was 58.1%, what was the mass of the ore sample? Hint: Balance the oxidation reduction reaction first.