1. Balance \[ \text{Al(s)} + 0_2 \rightarrow \text{Al}_2\text{O}_3 \]

2. Balance \[ \text{Ca(s)} + \text{H}^+ \rightarrow \text{Ca}^{2+} + \text{H}_2 \]

3. What mass of CO$_2$ is produced by reacting 0.500 g H$_2$C$_2$O$_4$ with 50.00 mL of an acidic 0.0200 M MnO$_4^-$ solution?

\[ \text{MnO}_4^- + \text{H}_2\text{C}_2\text{O}_4 \text{(aq)} \rightarrow \text{Mn}^{2+} \text{(aq)} + \text{CO}_2 \text{(g)} \]
4. For the following reaction:

\[ \text{IO}_3^- + \text{AsO}_3^- \rightarrow \text{I}^- + \text{AsO}_4^- \]

a) What is the reducing agent? ____________________
b) What is the oxidizing agent? ____________________
c) What species is being reduced? ____________________
d) What species is being oxidized? ____________________
e) What is the oxidation number of As in AsO$_4^-$?

5. Which of the following acids is the strongest oxidizing agent?

- HCl
- HNO$_3$
- H$_3$PO$_4$
- HBr
- HI
- Cold dilute H$_2$SO$_4$

6. Using the activity series:

a) Will Cs$^+$ oxidize Cr(s) ?

b) Will the following reactions occur (Y or NR)?

\[ \text{Pb}^{2+} + \text{Co}(s) \rightarrow \text{________} \]

\[ \text{Zn}(s) + \text{Mg}^{2+} \rightarrow \text{________} \]