

## Redox Equations -- The Ron Clark Collection

### Set One

1.  $\text{MnO}_4^- + \text{Fe}^{2+} \rightarrow \text{Mn}^{2+} + \text{Fe}^{3+}$  (in acid)
2.  $\text{MnO}_4^- + \text{C}_2\text{O}_4^{2-} \rightarrow \text{Mn}^{2+} + \text{CO}_2$  (in acid)
3.  $\text{MnO}_4^- + \text{Fe}(\text{OH})_2 \rightarrow \text{Fe}(\text{OH})_3 + \text{MnO}_2$  (in base)
4.  $\text{Cr}_2\text{O}_7^{2-} + \text{S}_2\text{O}_3^{2-} \rightarrow \text{Cr}^{3+} + \text{SO}_4^{2-}$  (in acid)
5.  $\text{Ce}^{4+} + \text{C}_2\text{O}_4^{2-} \rightarrow \text{Ce}^{3+} + \text{CO}_2$  (in acid)
6.  $\text{CrO}_4^{2-} + \text{SO}_3^{2-} \rightarrow \text{Cr}(\text{OH})_3 + \text{SO}_4^{2-}$  (in base)
7.  $\text{Cl}_2 \rightarrow \text{ClO}_3^- + \text{Cl}^-$  (in base)
8.  $\text{IO}_3^- + \text{I}^- \rightarrow \text{I}_2$  (in acid)
9.  $\text{I}_2 + \text{S}_2\text{O}_3^{2-} \rightarrow \text{S}_4\text{O}_6^{2-} + \text{I}^-$  (in acid)
10.  $\text{Cr}(\text{OH})_4^- + \text{H}_2\text{O}_2 \rightarrow \text{CrO}_4^{2-} + \text{H}_2\text{O}$  (in base)
11.  $\text{Cr}_2\text{O}_7^{2-} + \text{NO}_2^- \rightarrow \text{NO}_3^- + \text{Cr}^{3+}$  (in acid)
12.  $\text{CrO}_4^{2-} + \text{H}_2\text{S} \rightarrow \text{Cr}(\text{OH})_3 + \text{S}$  (in base)

Now things can get interesting.

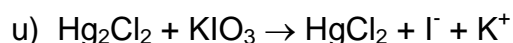
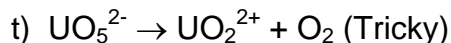
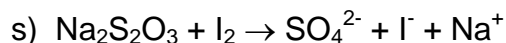
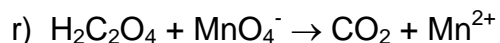
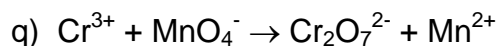
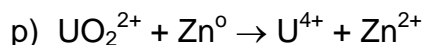
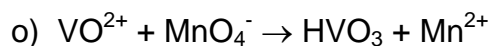
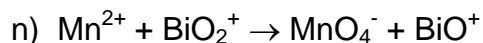
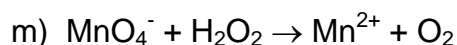
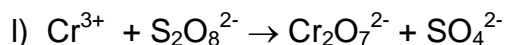
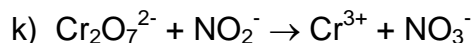
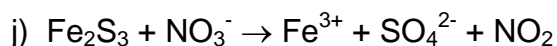
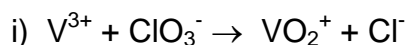
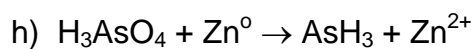
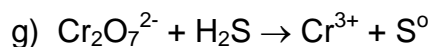
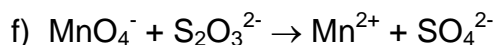
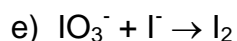
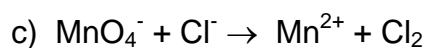
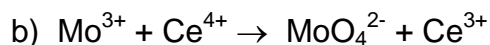
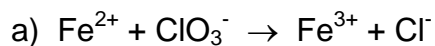
13.  $\text{Fe}_2\text{S}_3 + \text{Cr}_2\text{O}_7^{2-} \rightarrow \text{Cr}^{3+} + \text{Fe}^{3+} + \text{SO}_4^{2-}$  (in acid)
14.  $\text{Cr}_2\text{O}_7^{2-} + \text{H}_2\text{O}_2 \rightarrow \text{CrO}_5 + \text{H}_2\text{O}$  (in acid)
15.  $\text{CrO}_5 + \text{H}_2\text{O}_2 \rightarrow \text{Cr}^{3+} + \text{O}_2$  (in acid)
16.  $\text{NO}_2^- + \text{Al} \rightarrow \text{NH}_3 + \text{AlO}_2^-$  (in base)

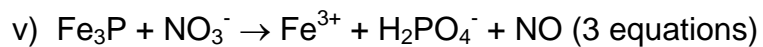
The graduation exercise

17.  $\text{Cu}_5\text{FeS}_8 + \text{Cr}_2\text{O}_7^{2-} \rightarrow \text{Cu}^{2+} + \text{Fe}^{3+} + \text{SO}_4^{2-} + \text{Cr}^{3+}$

## Set Two

1. Balance the following reactions which all take place in an acid solution.





2. Balance the following reactions in a basic solution.

