

Redox reactions – half equations to overall equations and overall to half

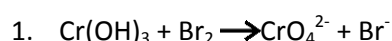
Lesson 3

*Refresh your knowledge of half-equations by visiting*

[www.dynamicscience.com.au/tester/solutions1/chemistry/redox/buildinghalfreactions.htm](http://www.dynamicscience.com.au/tester/solutions1/chemistry/redox/buildinghalfreactions.htm)

Every redox reaction consists of an oxidant and reductant pair that form their respective conjugates. Every time an oxidising agent gains electrons, it forms a reducing agent that could give electrons if the reaction were reversed, the same applies to reducing agents.

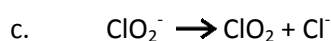
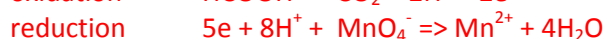
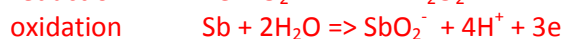
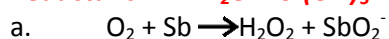
Write the balanced half reactions for the following overall reactions taking place in an acidic solution.



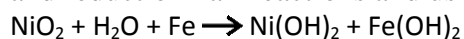
**Step 1 identify oxidant and reductant reactants and their conjugates using oxidation numbers. An oxidant has its oxidation number reduced while a reductant increases in oxidation number.**



**Step 2 Balance each half equation**



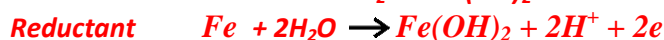
Write the balanced equation for the following reactions by first writing the oxidation and reduction half reactions and using these write the overall reaction equation.



**Step 1 identify oxidant and reductant reactants and their conjugates using oxidation numbers. Ignore the  $\text{H}_2\text{O}$ ,  $\text{H}^+$  and  $\text{OH}^-$  present. An oxidant has its oxidation number reduced while a reductant increases in oxidation number.**



**Step 2 Balance each half equation**



**Step 3 Add the two equations by first eliminating the electrons and cancel any  $\text{H}^+$  or  $\text{H}_2\text{O}$  that appears on both sides of the equation.**

