

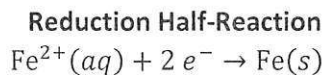
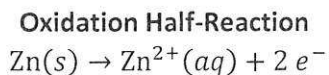
How to Identify What is Oxidized or Reduced in a Reaction

Once you have identified a redox reaction by the change in oxidation state, now you can tell what was oxidized or reduced!

- a. A substance that has the element that has been oxidized (LOST electrons) will have an oxidation number that becomes more positive (or less negative).
- b. A substance that has the element that has been reduced (GAINED electrons) will have an oxidation number that becomes more negative (or less positive).

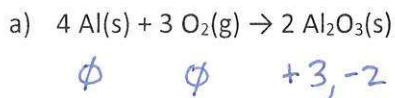
Balancing Redox Reactions: We split redox reactions into two separate reactions

- The oxidation half-reaction has electrons as a product.
- The reduction half-reaction has electrons as a reactant.

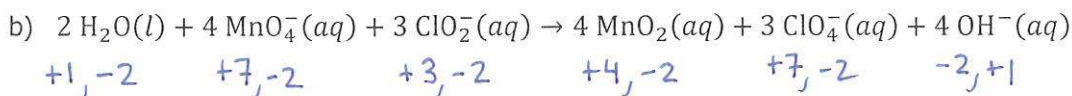


Practice!

1. Using oxidation numbers, identify what was oxidized and reduced in each reaction below.

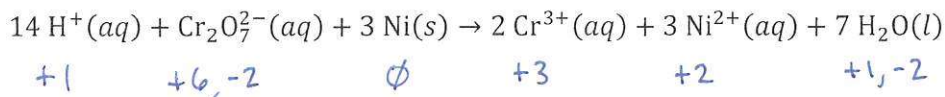


oxidized: $\text{Al}(s) (\phi \rightarrow +3)$
reduced: $\text{O}_2(g) (\phi \rightarrow -2)$



oxidized: $\text{ClO}_2^{-} (\text{Cl}: +3 \rightarrow +7)$
reduced: $\text{MnO}_4^{-} (\text{Mn}: +7 \rightarrow +4)$

2. In the reaction below, a piece of solid nickel is added to a solution of potassium dichromate.



Which species is being oxidized and which is being reduced?

Oxidized

Reduced

- a. $\text{Cr}_2\text{O}_7^{2-}(aq)$ $\text{Ni}(s)$
b. $\text{Cr}^{3+}(aq)$ $\text{Ni}^{2+}(aq)$
c. $\text{Ni}(s)$ $\text{Cr}_2\text{O}_7^{2-}(aq)$
d. $\text{Ni}^{2+}(aq)$ $\text{Cr}^{3+}(aq)$