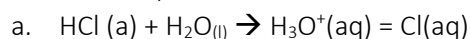


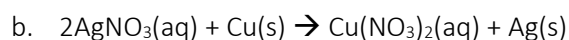
Friday worksheet 5 – identifying redox reactions through oxidation numbers.

A redox reaction is composed of two reactions occurring simultaneously, the oxidation and the reduction half reactions. The oxidation reaction produces electrons while the reduction reactions accepts electrons. For each of the following identify the redox reactions by identifying the:

- Atom being reduced (justify your answer using oxidation numbers)
- Atom being oxidised (justify your answer using oxidation numbers)
- The reductant (is the atom being oxidised or the compound that contains the atom being oxidised)
- The oxidant (is the atom being reduced or the compound that contains the atom being reduced)



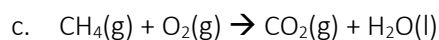
No not a redox reaction. No change in oxidation state of any species reacting.



Yes this is a redox reaction.

Ag is being reduced from Ag^+ in AgNO_3 to Ag (s) . Oxidation state changes from +1 ($\text{Ag}^+(\text{aq})$) to 0 (Ag(s)). Cu(s) is oxidised to Cu^{2+} . Oxidation state changes from 0 (Cu(s)) to +2 in $\text{Cu}^{2+}(\text{aq})$.

The reductant is Cu while the oxidant is AgNO_3

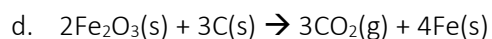


Yes this is a redox reaction.

O is being reduced from O_2 to O^{2-} . Oxidation state changes from 0 ($\text{O}_2(\text{g})$) to -2 ($\text{H}_2\text{O(l)}$).

CH_4 is oxidised to CO_2 . Oxidation state of C changes from -4 in CH_4 to +4 in CO_2 .

The reductant is CH_4 while the oxidant is O_2



Yes this is a redox reaction.

Fe is being reduced from Fe^{3+} to Fe(s) . Oxidation state changes from +3 (Fe_2O_3) to 0 (Fe(s)).

C is oxidised to CO_2 . Oxidation state of C changes from 0 in C(s) to +4 in CO_2 .

The reductant is C(s) while the oxidant is Fe_2O_3

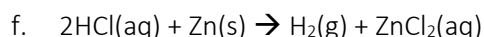


Yes this is a redox reaction.

Mn is being reduced from Mn^{7+} to Mn^{2+} . Oxidation state changes from +7 (MnO_4^-) to +2 (Mn^{2+}).

C is oxidised from +2 in $\text{CH}_3\text{CH}_2\text{OH}$ to 0 in CH_3COOH

The reductant is $\text{CH}_3\text{CH}_2\text{OH}$ while the oxidant is MnO_4^-

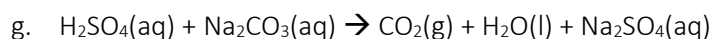


Yes this is a redox reaction.

H is being reduced from +1 to 0. Oxidation state changes from +1 (HCl) to 0 (H_2).

Zn is oxidised from 0 in zn(s) to +2 in ZnCl_2

The reductant Zn while the oxidant is HCl



No not a redox reaction. No change in oxidation state of any species reacting