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)
- a. HCl (a) + $H_2O_{(I)} \rightarrow H_3O^+(aq) = Cl(aq)$
- b. $2AgNO_3(aq) + Cu(s) \rightarrow Cu(NO_3)_2(aq) + Ag(s)$
- c. $CH_4(g) + O_2(g) \rightarrow CO_2(g) + H_2O(I)$
- d. $2Fe_2O_3(s) + 3C(s) \rightarrow 3CO_2(g) + 4Fe(s)$
- e. $4MnO_4^{-}(aq) + 12H^{+}(aq) + 5CH_3CH_2OH(aq) \rightarrow 5CH_3CO_2H(aq) + 4Mn^{2+}(aq) + 11H_2O(I)$
- f. $2HCl(aq) + Zn(s) \rightarrow H_2(g) + ZnCl_2(aq)$
- g. $H_2SO_4(aq) + Na_2CO_3(aq) \rightarrow CO_2(g) + H_2O(I) + Na_2SO_4(aq)$