Yum, Electrifying Practice!

Now You Try! Balance the following redox reactions.

1. $O^{2-}(aq) + F_2(g) \rightarrow O_2(g) + F^-(aq)$

$2O^{2-} \rightarrow O_2 + 4e^-$ $\quad$ $(2e^- + F_2 \rightarrow 2F^-) \times 2$

$$\boxed{2O^{2-}(aq) + 2F_2(g) \rightarrow O_2(g) + 4F^-(aq)}$$

2. $Al(s) + Cu^{2+}(aq) \rightarrow Cu(s) + Al^{3+}(aq)$

$2 \times (Al \rightarrow Al^{3+} + 3e^-)$ $\quad$ $(2e^- + Cu^{2+} \rightarrow Cu) \times 3$

$$\boxed{2Al(s) + 3Cu^{2+}(aq) \rightarrow 3Cu(s) + 2Al^{3+}(aq)}$$

3. $Ag^+(aq) + Cu(s) \rightarrow Ag(s) + Cu^{2+}(aq)$

$(e^- + Ag^+ \rightarrow Ag) \times 2$ $\quad$ $Cu \rightarrow Cu^{2+} + 2e^-$

$$\boxed{2Ag^+(aq) + Cu(s) \rightarrow 2Ag(s) + Cu^{2+}(aq)}$$

4. $Hg(l) + Au^{3+}(aq) \rightarrow Hg_2{}^{2+}(l) + Au(s)$

$3 \times (2Hg \rightarrow Hg_2^{2+} + 2e^-)$ $\quad$ $(3e^- + Au^{3+} \rightarrow Au) \times 2$

$$\boxed{6Hg(l) + 2Au^{3+}(aq) \rightarrow 3Hg_2^{2+}(l) + 2Au(s)}$$

5. $Zn^{2+}(aq) + K(s) \rightarrow Zn(s) + K^+(aq)$

$2e^- + Zn^{2+} \rightarrow Zn$ $\quad$ $(K \rightarrow K^+ + e^-) \times 2$

$$\boxed{Zn^{2+}(aq) + 2K(s) \rightarrow Zn(s) + 2K^+(aq)}$$