Oxidation-Reduction Balancing
Additional Practice Problems

Acidic Solution

1. $Ag + NO_3^- \rightarrow Ag^+ + NO$

2. $Zn + NO_3^- \rightarrow Zn^{2+} + NH_4^+$

3. $Cr_2O_7^{2-} + C_2H_4O \rightarrow C_2H_4O_2 + Cr^{3+}$

4. $H_3PO_2 + Cr_2O_7^{2-} \rightarrow H_3PO_4 + Cr^{3+}$

Basic Solution

1. $MnO_4^- + C_2O_4^{2-} \rightarrow MnO_2 + CO_2$

2. $ClO^- + Fe(OH)_3 \rightarrow Cl^- + FeO_4^{2-}$

3. $HO_2^- + Cr(OH)_3 \rightarrow CrO_4^{2-} + OH^-$

4. $N_2H_4 + Cu(OH)_2 \rightarrow N_2 + Cu$

Oxidation-Reduction Balancing

Additional Practice Problems

Acidic Solution

1. $Ag + NO_3^- \rightarrow Ag^+ + NO$

   Answer:
   $4H^+ + 3Ag + NO_3^- \rightarrow 3Ag^+ + NO + 2H_2O$

2. $Zn + NO_3^- \rightarrow Zn^{2+} + NH_4^+$

   Answer:
   $10H^+ + 4Zn + NO_3^- \rightarrow 4Zn^{2+} + NH_4^+ + 3H_2O$

3. $Cr_2O_7^{2-} + C_2H_4O \rightarrow C_2H_4O_2 + Cr^{3+}$

   Answer:
   $8H^+ + Cr_2O_7^{2-} + 3C_2H_4O \rightarrow 3C_2H_4O_2 + 2Cr^{3+} + 4H_2O$

4. $H_3PO_2 + Cr_2O_7^{2-} \rightarrow H_3PO_4 + Cr^{3+}$

   Answer:
   $16H^+ + 3H_3PO_2 + 2Cr_2O_7^{2-} \rightarrow 3H_3PO_4 + 4Cr^{3+} + 8H_2O$

Basic Solution

1. $MnO_4^- + C_2O_4^{2-} \rightarrow MnO_2 + CO_2$

   Answer:
   $4H_2O + 2MnO_4^- + 3C_2O_4^{2-} \rightarrow 2MnO_2 + 6CO_2 + 8OH^-$

2. $ClO^- + Fe(OH)_3 \rightarrow Cl^- + FeO_4^{2-}$

   Answer:
   $4OH^- + 3ClO^- + 2Fe(OH)_3 \rightarrow 3Cl^- + 2FeO_4^{2-} + 5H_2O$

3. $HO_2^- + Cr(OH)_3 \rightarrow CrO_4^{2-} + OH^-$

   Answer:
   $OH^- + 3HO_2^- + 2Cr(OH)_3 \rightarrow 2CrO_4^{2-} + 5H_2O$

4. $N_2H_4 + Cu(OH)_2 \rightarrow N_2 + Cu$

   Answer:
   $N_2H_4 + 2Cu(OH)_2 \rightarrow N_2 + 2Cu + 4H_2O$