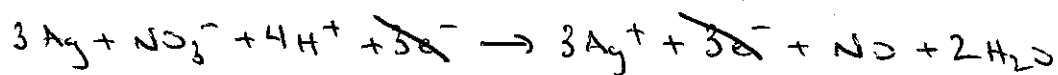
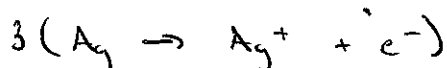
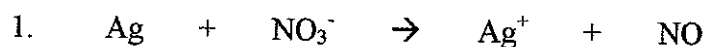


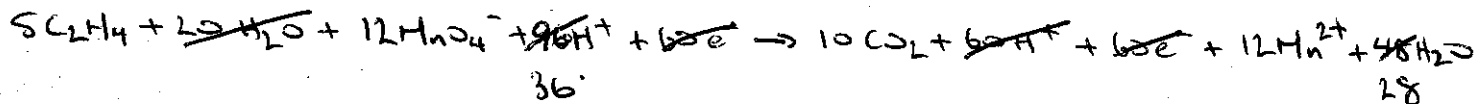
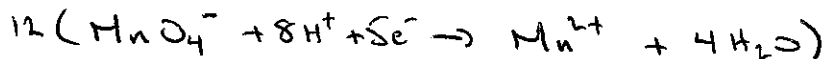
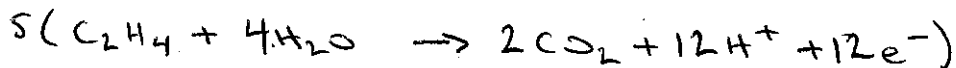
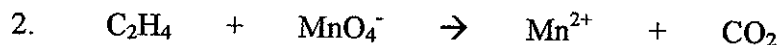
Balance the following redox reaction using the half-reaction method. Identify the oxidizing agent (OA), the reducing agent (RA), the element oxidized, and the element reduced.

### Acidic Solution Problems



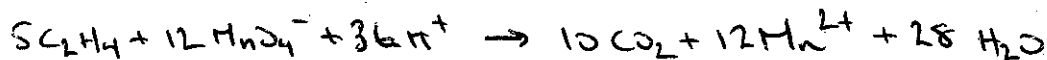
Element Oxidized Ag Element Reduced N RA Ag OA NO<sub>3</sub><sup>-</sup>

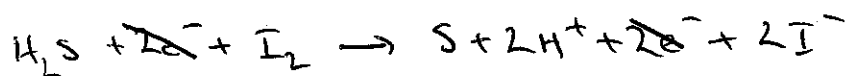
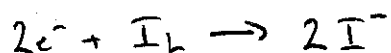
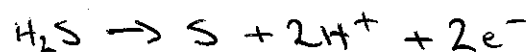
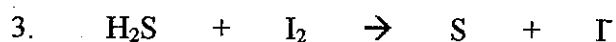
Correct Equation:  $3\text{Ag} + \text{NO}_3^- + 4\text{H}^+ \rightarrow 3\text{Ag}^+ + \text{NO} + 2\text{H}_2\text{O}$



Element Oxidized C Element Reduced Mn RA C<sub>2</sub>H<sub>4</sub> OA MnO<sub>2</sub>

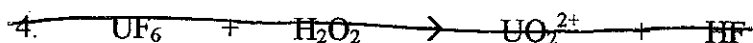
**Correct Equation:**





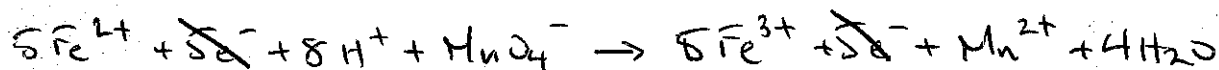
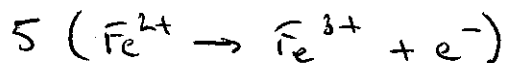
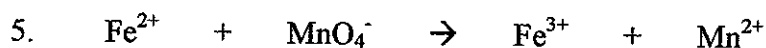
Element Oxidized S Element Reduced I RA  $\text{H}_2\text{S}$  OA  $\text{I}_2$

Correct Equation:  $\text{H}_2\text{S} + \text{I}_2 \rightarrow \text{S} + 2\text{I}^- + 2\text{H}^+$



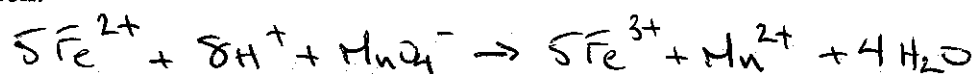
Element Oxidized U Element Reduced O RA  $\text{UF}_6$  OA  $\text{H}_2\text{O}_2$

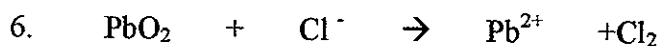
Correct Equation:



Element Oxidized Fe Element Reduced Mn RA  $\text{Fe}^{2+}$  OA  $\text{MnO}_4^-$

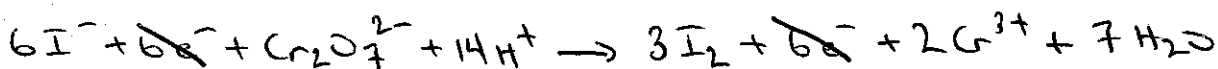
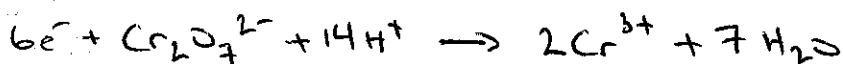
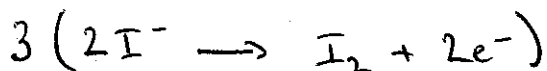
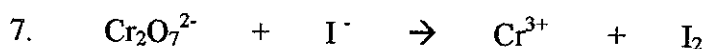
Correct Equation:





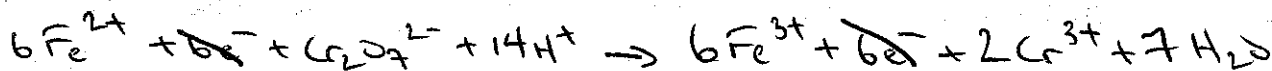
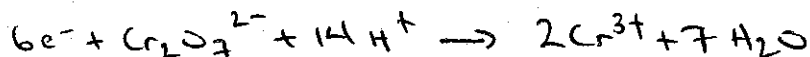
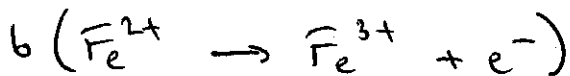
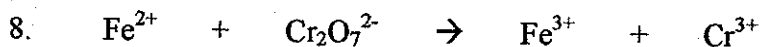
Element Oxidized Cl Element Reduced Pb RA Cl<sup>-</sup> OA PbO<sub>2</sub>

Correct Equation:  $2\text{Cl}^- + \text{PbO}_2 + 4\text{H}^+ \rightarrow \text{Cl}_2 + \text{Pb}^{2+} + 2\text{H}_2\text{O}$



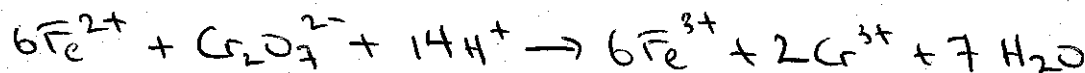
Element Oxidized I Element Reduced Cr RA I<sup>-</sup> OA Cr<sub>2</sub>O<sub>7</sub><sup>2-</sup>

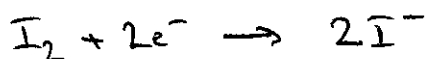
Correct Equation:  $6\text{I}^- + \text{Cr}_2\text{O}_7^{2-} + 14\text{H}^+ \rightarrow 3\text{I}_2 + 2\text{Cr}^{3+} + 7\text{H}_2\text{O}$



Element Oxidized Fe Element Reduced Cr RA Fe<sup>2+</sup> OA Cr<sub>2</sub>O<sub>7</sub><sup>2-</sup>

Correct Equation:

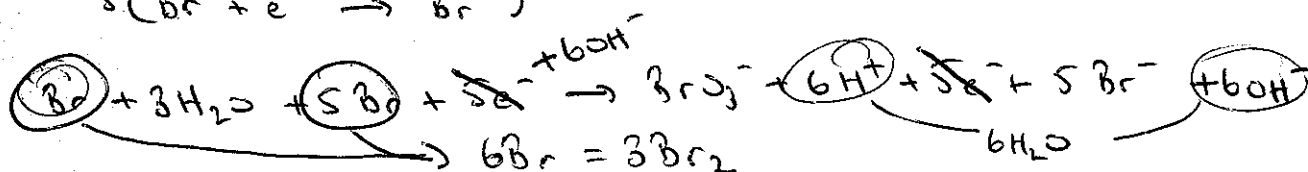
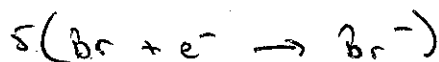
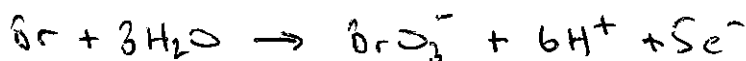
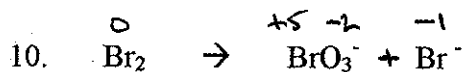




Element Oxidized As Element Reduced I RA  $H_3AsO_3$  OA  $I_2$

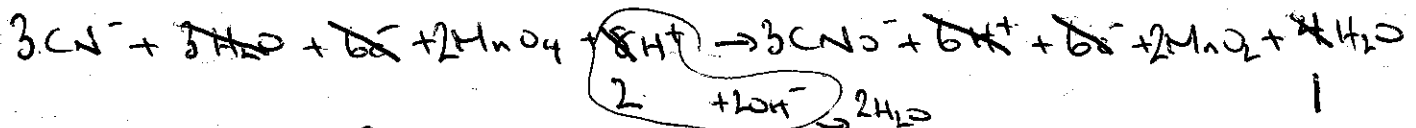
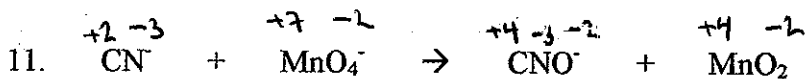
Correct Equation:  $H_3AsO_3 + H_2O + I_2 \rightarrow H_3AsO_4 + 2H^+ + 2I^-$

### Basic Solution Problems



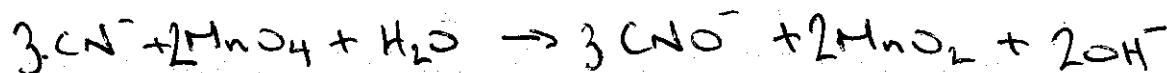
Element Oxidized Br Element Reduced Br RA  $Br_2$  OA  $Br_2$

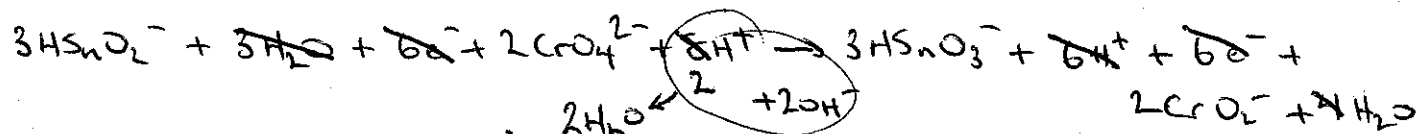
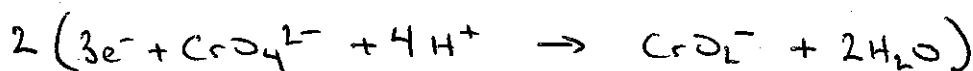
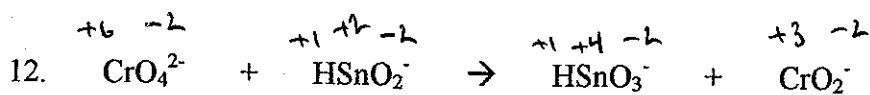
Correct Equation:  $3Br_2 + 6OH^- \rightarrow BrO_3^- + 3H_2O + 5Br^-$



Element Oxidized C Element Reduced Mn RA  $CN^-$  OA  $MnO_4^-$

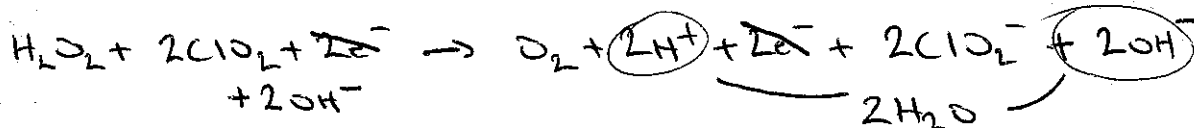
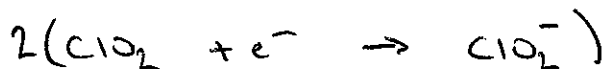
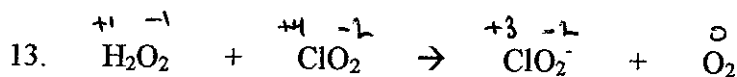
Correct Equation:





Element Oxidized Sn Element Reduced Cr RA HSnO<sub>2</sub><sup>-</sup> OA CrO<sub>4</sub><sup>2-</sup>

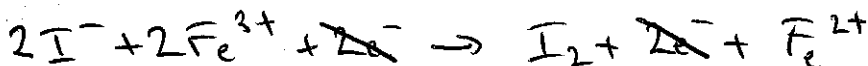
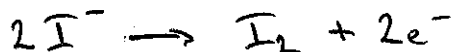
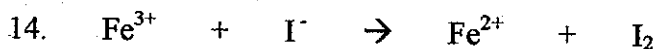
Correct Equation:  $3\text{HSnO}_2^- + 2\text{CrO}_4^{2-} + \text{H}_2\text{O} \rightarrow 3\text{HSnO}_3^- + 2\text{CrO}_2^- + 2\text{OH}^-$



Element Oxidized O Element Reduced Cl RA H<sub>2</sub>O<sub>2</sub> OA ClO<sub>2</sub>

Correct Equation:  $\text{H}_2\text{O}_2 + 2\text{ClO}_2 + 2\text{OH}^- \rightarrow \text{O}_2 + 2\text{H}_2\text{O} + 2\text{ClO}_2^-$

### Neutral Solution Problems



Element Oxidized I Element Reduced Fe RA I<sup>-</sup> OA Fe<sup>3+</sup>

Correct Equation:

