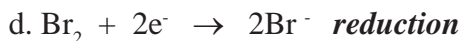
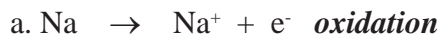


## Half – Reactions

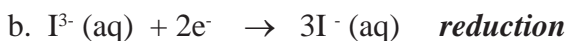
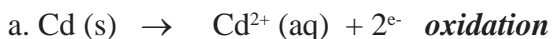
1. Identify the following reactions as oxidation or reduction reactions.
  - a.  $\text{Na} \rightarrow \text{Na}^+ + \text{e}^-$
  - b.  $\text{Cr}_2\text{O}_7^{2-} + 14\text{H}^+ + 6\text{e}^- \rightarrow 2\text{Cr}^{3+} + 7\text{H}_2\text{O}$
  - c.  $2\text{Cl}^- \rightarrow \text{Cl}_2 + 2\text{e}^-$
  - d.  $\text{Br}_2 + 2\text{e}^- \rightarrow 2\text{Br}^-$
  
2. Which of the following reactions is an oxidation reaction and which is a reduction reaction?
  - a.  $\text{Cd}(\text{s}) \rightarrow \text{Cd}^{2+}(\text{aq}) + 2\text{e}^-$
  - b.  $\text{I}^-(\text{aq}) + 2\text{e}^- \rightarrow 3\text{I}^-(\text{aq})$
  
3. Write balanced equations for the following half-reactions.
  - a. Reduction of  $\text{Pt}^{2+}$  to Pt \_\_\_\_\_
  - b. Oxidation of  $\text{Fe}^{2+}$  to  $\text{Fe}^{3+}$  \_\_\_\_\_
  - c. Reduction of S to  $\text{S}^{2-}$  \_\_\_\_\_
  - d. Reduction of  $\text{Br}_2$  to  $\text{Br}^-$  \_\_\_\_\_
  - e. Oxidation of Au to  $\text{Au}^{3+}$  \_\_\_\_\_
  - f. Oxidation of  $\text{Cu}^{2+}$  to Cu \_\_\_\_\_
  
4. Balance and rewrite the following equations, showing the half-reactions that are really occurring.
  - a.  $\text{PbO}(\text{aq}) + \text{Mg}(\text{s}) \rightarrow \text{MgO} + \text{Pb}$  \_\_\_\_\_
  - b.  $\text{Fe}(\text{s}) + \text{H}_2\text{O}(\text{e}) \rightarrow \text{Fe}_2\text{O}_3(\text{aq}) + \text{H}_2(\text{g})$  \_\_\_\_\_
  - c.  $\text{AgBr}(\text{aq}) + \text{Pt}(\text{s}) \rightarrow \text{PtBr}_2(\text{aq}) + \text{Ag}(\text{s})$  \_\_\_\_\_
  - d.  $\text{Ni}(\text{s}) + \text{Al}(\text{NO}_3)_3 \rightarrow \text{Ni}(\text{NO}_3)_2 + \text{Al}$  \_\_\_\_\_

## Half -Reactions (*Answer Key*)

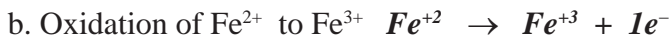
1. Identify the following reactions as oxidation or reduction reactions.



2. Which of the following reactions is an oxidation reaction and which is a reduction reaction?



3. Write balanced equations for the following half-reactions.



4. Balance and rewrite the following equations, showing the half-reactions that are really occurring.

