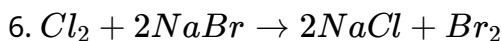
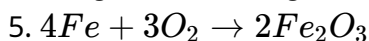
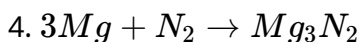
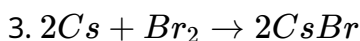
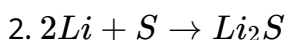
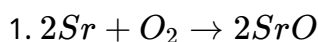


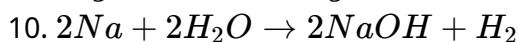
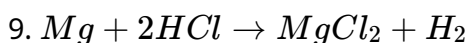
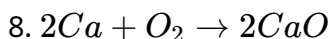
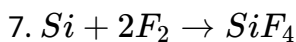
Redox Reactions



1. Determine what is oxidized and what is reduced in each reaction. Identify the oxidizing agent and the reducing agent, also.



7. Determine what is oxidized and what is reduced in each reaction. Identify the oxidizing agent and the reducing agent, also.



11. Give the oxidation number of each kind of atom or ion.

a. Sulfate

b. Sn

c. S^{2-}

d. Fe^{3+}

e. Sn^{4+}

f. Nitrate

g. Ammonium

12. Calculate the oxidation number of chromium in each of the following.

a. Cr_2O_3

b. $Na_2Cr_2O_7$

c. $CrSO_4$

d. Chromate

e. Dichromate

13. Use the changes in oxidation numbers to determine which elements are oxidized and which are reduced in these reactions. (Note: it is not necessary to use

balanced equations)

- a. $C + H_2SO_4 \rightarrow CO_2 + SO_2 + H_2O$
b. $HNO_3 + HI \rightarrow NO + I_2 + H_2O$
c. $KMnO_4 + HCl \rightarrow MnCl_2 + Cl_2 + H_2O + KCl$
d. $Sb + HNO_3 \rightarrow Sb_2O_3 + NO + H_2O$
-

14. For each reaction in problem 13, identify the oxidizing agent and reducing agent.

15. Write half-reactions for the oxidation and reduction process for each of the following.

- a. $Fe^{2+} + MnO_4^- \rightarrow Fe^{3+} + Mn^{2+}$
b. $Sn^{2+} + IO_3^- \rightarrow Sn^{4+} + I^-$
c. $S^{2-} + NO_3^- \rightarrow S + NO$
d. $NH_3 + NO_2 \rightarrow N_2 + H_2O$
-

16. Complete and balance each reaction using the half-reaction method.

- a. $Fe^{2+} + MnO_4^- \rightarrow Fe^{3+} + Mn^{2+}$
b. $Sn^{2+} + IO_3^- \rightarrow Sn^{4+} + I^-$
c. $S^{2-} + NO_3^- \rightarrow S + NO$
d. $NH_3 + NO_2 \rightarrow N_2 + H_2O$
e. $Mn^{2+} + BiO_3^- \rightarrow Bi^{3+} + MnO_4^-$
f. $I_2 + Na_2S_2O_3 \rightarrow Na_2S_4O_6 + NaI$
-

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