

OXIDATION REDUCTION  
WORKSHEET 1

Balance the following oxidation reduction reactions.

1.  $\text{H}_2\text{S} + \text{HNO}_3 \rightarrow \text{S} + \text{NO} + \text{H}_2\text{O}$
2.  $\text{H}_2\text{S} + \text{HNO}_3 \rightarrow \text{H}_2\text{SO}_4 + \text{NO}_2 + \text{H}_2\text{O}$
3.  $\text{HI} + \text{H}_2\text{SO}_4 \rightarrow \text{I}_2 + \text{H}_2\text{S} + \text{H}_2\text{O}$
4.  $\text{HBr} + \text{H}_2\text{SO}_4 \rightarrow \text{Br}_2 + \text{SO}_2 + \text{H}_2\text{O}$
5.  $\text{KMnO}_4 + \text{HBr} \rightarrow \text{Br}_2 + \text{MnBr}_2 + \text{KBr} + \text{H}_2\text{O}$
6.  $\text{KMnO}_4 + \text{H}_2\text{S} + \text{H}_2\text{SO}_4 \rightarrow \text{S} + \text{MnSO}_4 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
7.  $\text{K}_2\text{Cr}_2\text{O}_7 + \text{H}_2\text{S} + \text{H}_2\text{SO}_4 \rightarrow \text{S} + \text{Cr}_2(\text{SO}_4)_3 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$

BALANCING REDOX REACTIONS  
WORKSHEET 2

1.  $\text{S} + \text{H}_2\text{SO}_4 \rightarrow \text{SO}_2 + \text{H}_2\text{O}$
2.  $\text{NaOH} + \text{Br}_2 \rightarrow \text{NaBrO}_3 + \text{NaBr} + \text{H}_2\text{O}$
3.  $\text{S} + \text{HNO}_3 \rightarrow \text{H}_2\text{SO}_4 + \text{NO}_2 + \text{H}_2\text{O}$
4.  $\text{Cu} + \text{HNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + \text{NO}_2 + \text{H}_2\text{O}$
5.  $\text{Fe} + \text{HNO}_3 \rightarrow \text{Fe}(\text{NO}_3)_2 + \text{NO} + \text{H}_2\text{O}$
6.  $\text{HBr} + \text{K}_2\text{Cr}_2\text{O}_7 \rightarrow \text{CrBr}_3 + \text{KBr} + \text{Br}_2 + \text{H}_2\text{O}$
7.  $\text{FeCl}_2 + \text{KNO}_3 + \text{HCl} \rightarrow \text{FeCl}_3 + \text{NO} + \text{H}_2\text{O} + \text{KCl}$

REDOX EQUATIONS  
WORKSHEET 3

1.  $\text{Zn} + \text{NaNO}_3 + \text{NaOH} \rightarrow \text{Na}_2\text{ZnO}_2 + \text{NH}_3 + \text{H}_2\text{O}$
2.  $\text{K}_2\text{Cr}_2\text{O}_7 + \text{CH}_3\text{OH} + \text{H}_2\text{SO}_4 \rightarrow \text{Cr}_2(\text{SO}_4)_3 + \text{K}_2\text{SO}_4 + \text{HCOOH} + \text{H}_2\text{O}$
3.  $\text{KClO}_2 + \text{KBiO}_3 + \text{HClO}_3 \rightarrow \text{Bi}(\text{ClO}_3)_3 + \text{KClO}_3 + \text{H}_2\text{O}$
4.  $\text{F}_2 + \text{KOH} \rightarrow \text{KF} + \text{F}_2\text{O} + \text{H}_2\text{O}$
5.  $\text{Pb}_3\text{O}_4 + \text{HCl} \rightarrow \text{PbCl}_2 + \text{Cl}_2 + \text{H}_2\text{O}$
6.  $\text{Sb}_2(\text{SO}_4)_3 + \text{KMnO}_4 + \text{H}_2\text{O} \rightarrow \text{H}_3\text{SbO}_4 + \text{K}_2\text{SO}_4 + \text{MnSO}_4 + \text{H}_2\text{SO}_4$
7.  $\text{Na}_2\text{S}_2\text{O}_3 + \text{I}_2 \rightarrow \text{Na}_2\text{S}_4\text{O}_6 + \text{NaI}$