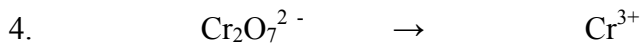
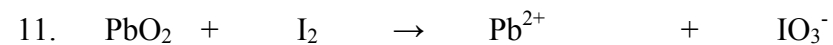
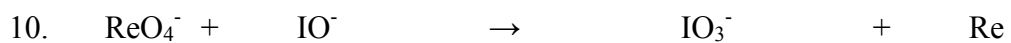
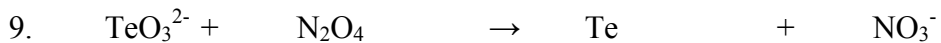
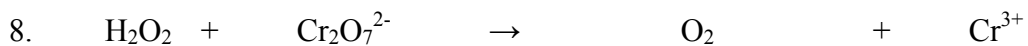


**Worksheet # 5      Balancing Redox Reactions in Acid and Basic Solution**

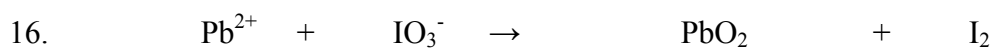
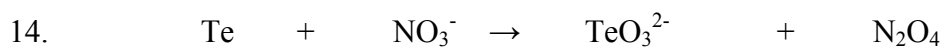
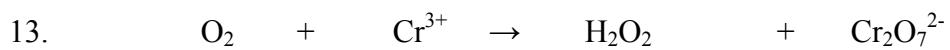
Balance each half reaction in basic solution.



Balance each redox reaction in acid solution using the half reaction method.



Balance each redox reaction in basic solution using the half reaction method.



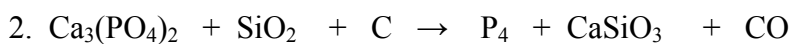
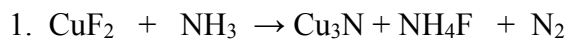
State of the change that represents oxidation, reduction or neither. Use oxidation #s.  
Remember that if the oxidation # increases it means oxidation and when it decreases it mean reduction!

18.  $\text{MnO}_2 \rightarrow \text{Mn}_2\text{O}_3$
19.  $\text{NH}_3 \rightarrow \text{NO}_2$
20.  $\text{HClO}_4 \rightarrow \text{HCl} + \text{H}_2\text{O}$
21.  $\text{O}_2 \rightarrow \text{O}^{2-}$
22.  $\text{P}_2\text{O}_5 \rightarrow \text{P}_4\text{H}_{10}$

Determine the oxidation number

- |     |  |       |     |  |       |
|-----|--|-------|-----|--|-------|
| 23. | $\text{H}_2\underline{\text{S}}\text{O}_4$ | _____ | 22. | $\text{H}\underline{\text{S}}\text{O}_4^-$ | _____ |
| 24. | $\underline{\text{P}}_4$                   | _____ | 23. | $\text{Na}\underline{\text{H}}$            | _____ |
| 25. | $\underline{\text{U}}\text{O}_3$           | _____ | 24. | $\text{Na}_2\underline{\text{O}}_2$        | _____ |
| 26. | $\underline{\text{U}}_2\text{O}_5$         | _____ | 25. | $\underline{\text{P b}}\text{SO}_4$        | _____ |

### Harder Balancing Questions - **DISPROPORTIONATION**



### WS #5 Balancing Redox Reactions in Acid and Basic Solution

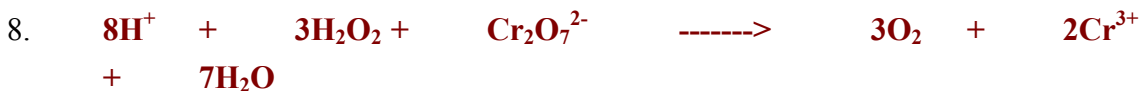
Balance each redox equation. Assume all are spontaneous. Use the half reaction method.



Balance each half reaction in basic solution.

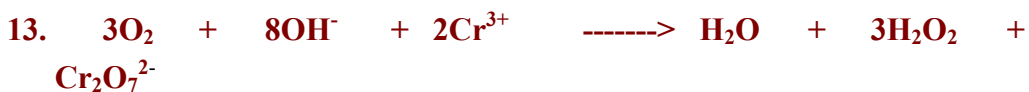


Balance each redox reaction in acid solution using the half reaction method.

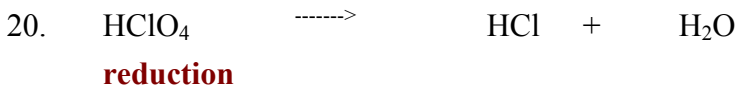




Balance each redox reaction in basic solution using the half reaction method.

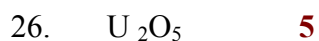
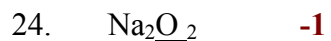
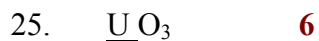


State of the change represents oxidation, reduction or neither (use oxidation #s).



Determine the oxidation number





Harder Balancing Questions - **DISPROPORTIONATION**

