

Ch 22

HW: Sec Rev 23,24,44,45

Sec 22.3

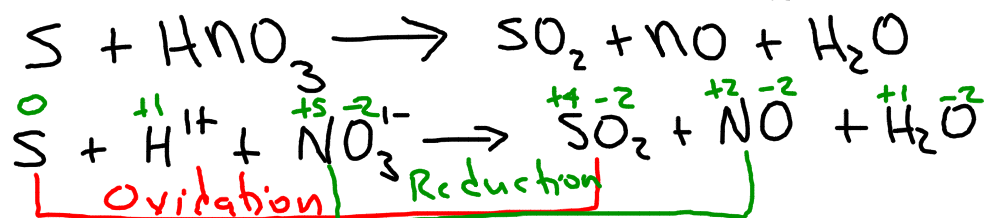
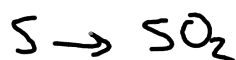
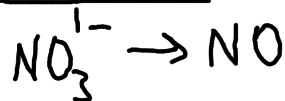
obj: Balance redox reactions using the 1/2 reaction method.

Half Reaction Method

- Uses the oxid + red  $\frac{1}{2}$  rxns to balance the equation.
- \* These rxns are usually in either acidic or basic solutions.
- In general, we are going to balance each half rxn and then add them together.

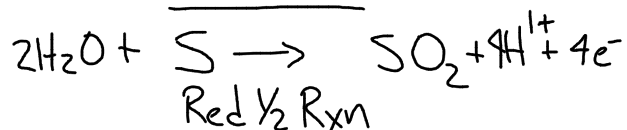
Steps

1) Write the rxn in ionic form.

2) Assign Oxidation numbers + Identify the oxidation + reduction  $\frac{1}{2}$  Rxns.Oxid  $\frac{1}{2}$  RxnRed  $\frac{1}{2}$  Rxn

- 3) Balance each  $\frac{1}{2}$  Rxn by atoms  
 \* Use  $H_2O$ ,  $OH^-$  +  $H^+$  to balance.  
 \* Oxygen + Hydrogen.  
 \* Acidic  $\rightarrow H^+$  +  $H_2O$   
 \* Basic  $\rightarrow OH^-$  +  $H_2O$

Oxid  $\frac{1}{2}$  Rxn



Red  $\frac{1}{2}$  Rxn

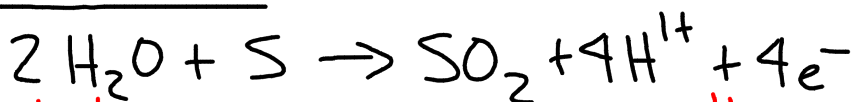


- 4) Balance  $\frac{1}{2}$  Rxns by charges.

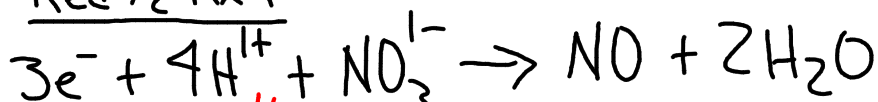
- \* Add  $e^-$  to one side of the equation.
- \* never add  $e^-$  to the same side in both  $\frac{1}{2}$  rxns.

- 5) Multiply a number to both  $\frac{1}{2}$  Rxns so that the # of electrons in each Rxn are equal.

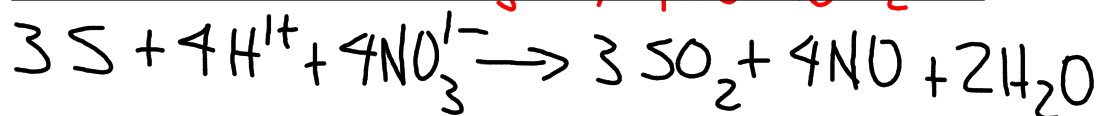
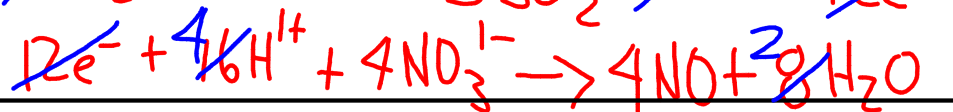
Oxid  $\frac{1}{2}$  Rxn



Red  $\frac{1}{2}$  Rxn



6) Add each  $\frac{1}{2}$  Rxn together



7) Add any spectator ions.