

## Balancing Redox Equations

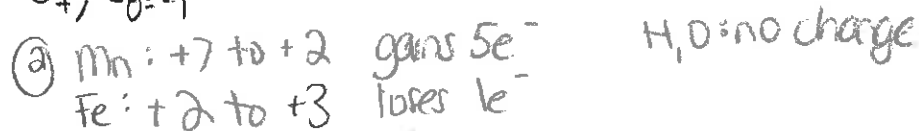
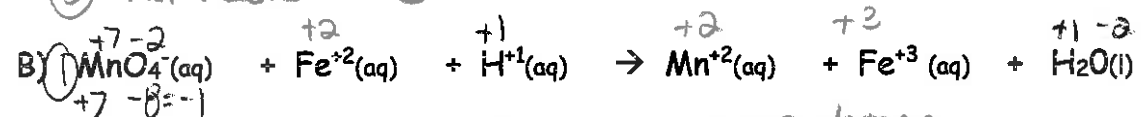
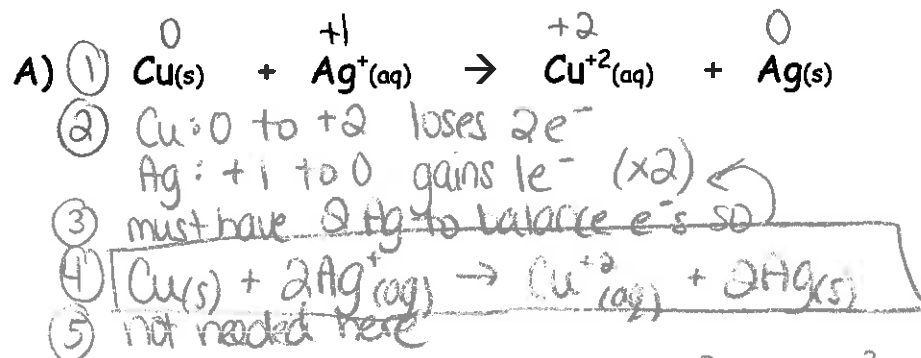
Goal: To make sure the number of *electrons lost* by the reducing agent equals the number of *electrons gained* by the oxidizing agent!

Two methods can be used:

1. Oxidation number method
2. Half-reaction method

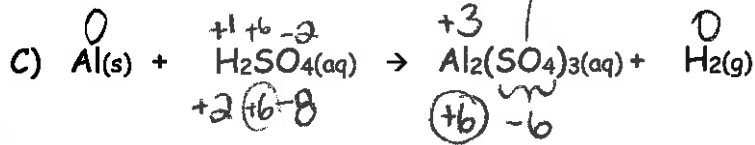
### Balancing Redox Equations Using Oxidation Numbers

1. Assign oxidation numbers to all the atoms
2. Identify which atoms undergo a change in oxidation number
3. Determine the ratio in which these atoms must react so that the total increase in oxidation numbers equals the decrease
4. Balance the redox participants in the equation
5. Balance the other atoms by the inspection method

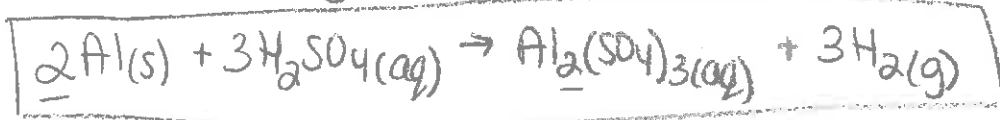


③ Fe must multiply by 5

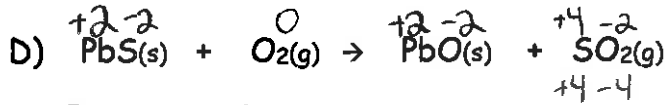




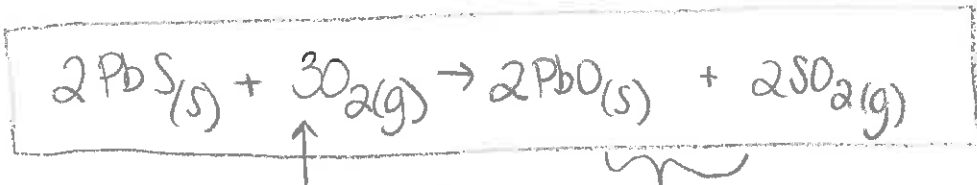
Al: 0 to +3 loses  $3e^-$   
 H: +1 to 0 gains  $1e^-$  (x3)



\* balance the rest too!



S: -2 to +4 loses 6  
 O: 0 to -2 gains 2 (x3)



only this one!

watch the balancing

x3 really means 6 O total

\* make sure to balance the rest (PbS)