**SI WORKSHEET 9**

1. If an element/compound loses electrons then it is OXIDIZED, which means that it is the REDUCING AGENT. If an element/compound gains electrons then it is REDUCED, which means that it is the OXIDIZING AGENT.
2. What is the charge on the manganese atom in Aluminum permanganate?

Al(MnO4)3. This is a compound. Aluminum has a +3 charge and oxygen always has a -2 charge unless with fluorine or in a peroxide. With this given information the charge on manganese has to be +7

1. What is the charge on Cl in NaClO4? What is the Charge of Cl in NaClO3? Is there a difference in the oxidation number/charge? If so, what does this difference tell you?

The Chlorine atom in Sodium perchlorate has a +7 oxidation number and the Chlorine in Sodium chlorate has a +5 oxidation number. +7 is more positive than +5 so the Chlorine in Sodium perchlorate is more oxidized than the Chlorine of Sodium chlorate meaning it has 2 less electrons.

1. Li + H2O 🡪 LiOH + H2. What is the oxidizing agent and what is the reducing agent? Li=RA; H2O=OA
	1. What kind of reaction is this? Gas forming displacement
	2. What is the percent yield if 1 gram of Hydrogen gas was produced from this reaction If 20 g of each reactant were present?

$\frac{20 g H2O}{}x\frac{1 mole H2O}{18 g H2O}x\frac{1 mole H2}{2 mole H2O}x\frac{2 g H2}{1 mole H2}$= Ty=1.11g H2 produced🡪1g/1.11g=% yield=90%

1. Fe3(PO4)2 + Cu 🡪 Cu(PO4)2 + Fe
	1. What kind of reaction is this? Displacement
	2. Does this occur spontaneously (w/o energy input)? No
	3. What is the oxidation number on the Phosphorus atom? +5
	4. How many electrons are transferred to the Iron atom? 2
2. (NH4)2SO4 + BaCl2 🡪 NH4Cl + BaSO4
	1. What kind of reaction is this? precipitation
	2. What is the net ionic equation and states of each compound?

Ba2+ + SO42-🡪BaSO4(s)

1. Na2SO3 + HNO3 🡪 NaNO3 + H2SO3🡪NaNO3 + H2O + SO2(g)
	1. What kind of reaction is this? Gas forming
	2. What is the oxidation state on the sulfur atom? +4
2. NaCl + Fe 🡪 Na + FeCl3. Is this a spontaneous reaction? No, Sodium is a more reactive metal (look at activation series) so it would rather be oxidized than reduced