Name: …… Section: …… Date: ……..

5.3C HONORS HOMEWORK – REDOX REACTIONS

1. Break the following redox reactions down into their half-equations:

(a)	Equation:	$Cu^{2+} + Zn \rightarrow Cu + Zn^{2+}$
	Reduction half-equation:	$Cu^{2+} + 2e^- \rightarrow Cu$
	Oxidation half-equation:	$Zn \rightarrow Zn^{2+} + 2e^-$

(b)	Equation:	$Mg + 2H^+ \rightarrow Mg^{2+} + H_2$
	Reduction half-equation:	$2H^+ + 2e^- \rightarrow H_2$
	Oxidation half-equation:	$Mg \rightarrow Mg^{2+} + 2e^-$

(c)	Equation:	$2I^- + 2Fe^{3+} \rightarrow I_2 + 2Fe^{2+}$
	Reduction half-equation:	$2Fe^{3+} + 2e^- \rightarrow 2Fe^{2+}$ or $Fe^{3+} + e^- \rightarrow Fe^{2+}$
	Oxidation half-equation:	$2I^- \rightarrow I_2 + 2e^-$

(d)	Equation:	$2Cu^+ \rightarrow Cu + Cu^{2+}$
	Reduction half-equation:	$Cu^+ + e^- \rightarrow Cu$
	Oxidation half-equation:	$Cu^+ \rightarrow Cu^{2+} + e^-$

2. In each of the equations below, show the oxidation numbers of all the atoms in each species:

(a)	Equation	H_2SO_4			+	2HBr			→	SO_2			+	Br_2			+	$2H_2O$		
	O.N.	+1	+6	-2		+1	-1			+4	-2			0				+2	-1	

(b)	Equation	Cl_2			+	H_2O			→	HCl			+	HClO						
	O.N.	0				+1	-2			+1	-1			+1	+1	-1				

(c)	Equation	HNO_3			+	NaOH			→	$NaNO_3$			+	H_2O						
	O.N.	+1	+5	-2		+1	-2	+1		+1	+5	-2			+1	-2				

3. Answer the following questions about the equations in Q2:

In Q2a, what is the oxidizing agent and what is the reducing agent?	H_2SO_4 is the OA, as it contains S which is reduced HBr is the RA, as it contains Br which is oxidized
Which of the reactions in Q2 is not a redox reaction? Explain your answer.	2c because the oxidation numbers don't change
Which of the reactions in Q2 is a disproportionation reaction? Explain your answer.	2b because the Cl is both oxidized and reduced