		Hint	Oxidation Numbers for each Element					
a.	$SnCl_4$	*Rule 2*	Sn	+4	Cl	-1		
b.	Ca_3P_2	*Rule 2*	Ca	+2	P	-3		
c.	SnO	*Rules 4, 5*	Sn	+2	O	-2		
d.	Ag_2S	*Rule 2*	Ag	+1	S	-2		
e.	HI	*Rule 3, 5*	H	+1	I	-1		
f.	N_2H_4	*Rule 3, 5*	N	-2	H	+1		
g.	Al_2O_3	*Rule 4, 5*	Al	+3	O	-2		
h.	S_8	*Rule 1*	S	0				
i.	HNO_2		H	+1	N	+3	O	-2
j.	O_2		O	0				
k.	H_3O^+	*Rules 3, 4, 6*	H	+1	O	-2		
l.	ClO_3^-	*Rules 4, 6*	Cl	+5	O	-2		
m.	$S_2O_3^{2-}$		S	+2	O	-2		
n.	$KMnO_4$		K	+1	Mn	7	O	-2
o.	$(NH_4)_2SO_4$		N	-3	H	+1	S	+6 O -2

2. Determine the oxidation number of carbon in each of the following compounds:

a. methane, CH_4

C = -4

b. formaldehyde, CH_2O

C = 0

c. carbon monoxide, CO

C = +2

d. carbon dioxide, CO_2

C = +4

3. When elemental iron is made from Fe_2O_3, it iron oxidized or reduced?

$Fe_2O_3 \rightarrow Fe^0$ $+3 \rightarrow 0$

$2Fe + (-2)3 = 0$ ∴ ↓ oxidation # = reduced

$2Fe + (-6) = 0$ ∴ $Fe = 3$

4. Determine which of the following processes are oxidations and which are reductions:

a. Co^{2+} becomes Co gains e⁻ = reduced ↓oxidation #

b. $2I^-$ becomes I_2.

-1 0 loses e⁻ ∴ oxidized

c. Fe^{3+} becomes Fe^{2+} ↓ oxidation # ∴ gains e⁻ ∴ reduced

d. Sn^{2+} becomes Sn^{4+} ↑ oxidation # ∴ loses e⁻ ∴ oxidized

5. Determine if each of the following changes is an oxidation, a reduction, or neither:

a. $SO_3^{2-} \rightarrow SO_4^{2-}$

$+4 \rightarrow +6$

∴ oxidized

$SO_3^{2-} \rightarrow S + 3(-2) = 2-$

$S + (-6) = -2$

$S = +4$

$SO_2^{2-} \rightarrow S + 4(-2) = -2$

$S + (-8)$

$S = +6$

b. $CaO \rightarrow Ca$

$2+$ 0

∴ gained electrons = reduction

c. $CrO_4^{2-} \rightarrow Cr_2O_7^{2-}$

$Cr + (-8) = -2$

$Cr = +6$

$2Cr + (-14) = -2$

$2Cr = +12$

$Cr = +6$

∴ neither

d. $2I^- \rightarrow I_2$

-1 0

∴ oxidation

e. $IO_3^{1-} \rightarrow I_2^0$

$I + (-6) = -1$

$I = +5$

$+5 \rightarrow 0$ ∴ gain electrons ∴ reduced