Name: ___**Key**___   SB#: ___007___

1. Write the oxidation number for each element on the reactant and product side of this chemical equation. (Phase labels are omitted for clarity.)
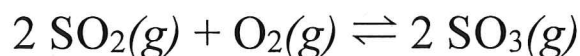
$$2\ KMnO_4 + 16\ HCl \rightarrow 2\ MnCl_2 + 8\ H_2O + 5\ Cl_2 + 2\ KCl$$

reactant side   product side

K	+1		K	+1
Mn	+7	*reduction* →	Mn	+2
O	−2		O	−2
Cl	−1	*oxidation* ←	Cl in $MnCl_2$	−1
H	+1	→	Cl in Cl_2	0
			Cl in KCl	−1
			H	+1

What element was oxidized? __*Chlorine*__

What element was reduced? __*Manganese*__

2. Write the equilibrium constant expression for the following reaction.

$$2\ SO_2(g) + O_2(g) \rightleftharpoons 2\ SO_3(g)$$

$$K_{eq} = \frac{[SO_3]^2}{[SO_2]^2[O_2]}$$