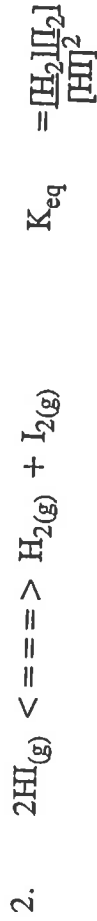


CHEMISTRY 12 EQUILIBRIUM REVIEW ANSWER SHEET

1. The equilibrium between the liquid and gaseous octane is an endothermic process as written. If the octane is heated more of the gaseous octane is produced. This causes the K_{eq} value to increase because $K_{eq} = [C_8H_{18(g)}]$.



HI	H ₂	I ₂	
I 0.60M	0	0	
C -2X	+X	+X	
E 0.60-2X	X	X	

$$0.0183 = \frac{X^2}{(0.60 - 2X)^2}$$

take square root of both sides and solve for X

$$X = 0.064$$

The equilibrium concentration of H₂ is 0.064 M.



$$K_{eq} = \frac{[HCl]^2[POCl_3]}{[H_2O]}$$

$$K_{eq} = \frac{(0.375)^2(0.250)}{(0.0250)} = 1.4$$



$$K_{eq} = \frac{[NO_2][SO_2]}{[SO_3][NO]} = 0.800$$

a) TIP = $\frac{(0.600)(0.450)}{(0.480)(0.400)} = 1.40$

0.800 does not equal 1.40 so the system is not at equilibrium

- b) As the system moves towards equilibrium it will shift towards the reactants, therefore the SO₃ concentration will increase and the SO₂ concentration will decrease.



$$K_{eq} = \frac{[NO_2]^2}{[NO]^2[O_2]}$$

NO	O ₂	NO ₂	
I 0.060	0.00	0.16	
C +0.040	+0.020	-0.040	
E 0.10	0.020	0.12	

$$K_{eq} = \frac{(0.12)^2}{(0.10)^2(0.020)^2} = 72$$